VITEX SPRUCEI var. VAUPESENSIS Moldenke, var. nov.

Haec varietas a forma typica speciei foliis trifoliolatis differt.

This variety differs from the typical form of the species in having its leaflets uniformly three in number.

The type of this variety was collected by Bassett Maguire, John J. Wurdack, and W. M. Keith (no. 41839) in a small savanna 0.5--1.5 km. north of Puerto Colombia, on the Río Guainia opposite to Maroa, Vaupés, Colombia, at an elevation of 130 meters, on October 12, 1947, and is deposited in the Britton Herbarium at the New York Botanical Garden. The collectors describe the plant as a tree 3--8 meters tall, the corollas white, the lip with a basal yellow spot, and state that it is frequent in the type locality.

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MATERIALS TOWARD A MONOGRAPH OF THE GENUS CITHAREXYLUM. III

Harold N. Moldenke

CITHAREXYLUM DENTATUM D. Don

Additional literature: Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 159. 1894; Moldenke, Geogr. Distrib. Avicenn. 23. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 34 & 88. 1942; Moldenke, Alph. List Cit. 1: 251 & 325 (1946), 2: 328, 338, & 427 (1948), 3: 690, 801, 802, & 880 (1949), and 4: 1065, 1112, & 1113. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 71 & 179. 1949.

Unarmed shrub or tree, to 5 m. tall, much branched; branches and branchlets medium-slender, stiff, dark-brown, obtusely or more or less acutely tetragonal, minutely puberulent with dark hairs or scurf or glabrate; twigs more slender, dark, more acutely tetragonal, minutely puberulent; nodes rather obscurely annulate; principal internodes 0.7--3.5 cm. long; leaf-scars large, borne on large, stout, ascending, corky sterigmata 1--2.5 mm. long; leaves very numerous, crowded, decussate-opposite; petioles stout, 1--10 mm. long, minutely puberulent or glabrate, corky (especially at the base); leaf-blades very stiff-coriaceous and rigid, dark-green, usually brunneous or nigrescent on both surfaces in drying, very shiny and glossy above, usually oblong or obovate-oblong (or the largest ones subobovate-elliptic to elliptic), 1.1--3.1 cm. long, 7--19 mm. wide, obtusely rounded or acute at the apex, cuneately narrowed to the base, not glanduliferous, subentire or (usually) more or less sharply and rather irregularly serrate toward the apex or to below the middle, usually more or less revolute along the margins when dry, glabrate and more or less densely punctate and scabrid on both surfaces; midrib slender, plane above, prominent beneath; secondaries slender, 4--6 pairs, short, ascending, usually not much arcuate, prominulous be-

neath, obscure above; veinlet reticulation rather sparse, obscure on both surfaces or prominulous beneath; racemes abbreviated, terminal, erect or nutant, unbranched, 1--3.5 cm. long, about 1.5 cm. wide, few- or many-flowered; peduncles slender and abbreviated or obsolete; rachis slender, densely puberulent; pedicels to 1 mm. long or obsolete, in fruit elongate to 4.5 mm. and greatly incrassate and indurated; prophylla minute and setaceous or linear and to 3 mm. long; calyx cyathiform, prominently 5--7-angled and -veined, its rim 6- or 7-dentate or 5--7-fid; corolla glabrous outside, villous at the throat within, its tube about half again as long as the calyx; fruiting-calyx indurated, campanulate (or cupuliform in age), to 5 mm. long and 8 mm. wide, dark and heavy, glabrate, its rim distinctly 5-lobed, the lobes about 1.5 mm. long, triangular, acute, to 3 mm. wide at the base; fruit subglobose, to 1 cm. long and wide, glabrous, apiculate when immature, black and shiny outside, green within, 2-lobed; seeds 2, hemispheric.

The type of this species was collected by Hipólito Ruíz at Maccos [=Mancos?, Ancash], Peru, in 1794. The flowers are described as "brown" and fragrant. The extremely heavy stiff-coriaceous leaves which (along with the branches, branchlets, twigs, and inflorescences) usually become dark-brown or black in drying and the abbreviated racemes characterize this species well. The teeth on the leaf-blades are usually sharp-pointed and spreading, but vary to obtuse and appressed, and are often very irregular in length and shape even on the same leaf. Their margins are often very slightly revolute. The species ascends to 3700 meters, and has been collected in anthesis in May, and in fruit in January and June. It has been confused with C. ilicifolium H.B.K., which, however, does not have the tremendously thickened and stiff leaves of this species. Schauer says, also, that in C. dentatum the leaves are scabrid, not truly spinose-dentate, and the calyx is deeply incised. The Pearce specimen, cited below, is notable in not having become at all brunneous nor nigrescent in drying. The fruit of this species is invariably described as black, even when fresh; it is said to be used for marking ink and writing ink. The species inhabits hills and mountains and is often found in dense thickets of mixed shrubs. Seventeen herbarium specimens, including the type collection, and 9 mounted photographs have been examined.

Citations: PERU: Ancash: Ruíz s.n. [Maccos; Macbride photos 17592] (B--isotype, F--663021--photo of isotype, F--843324--isotype, K--photo of isotype, Kr--photo of isotype, L--isotype, N--photo of isotype, N--photo of isotype, S--photo of isotype, Z--photo of isotype); Weberbauer 3285 (B). Ayacucho: Pearce s.n. [Huanta, 1867] (K); Weberbauer 5537 (B, B, B, E--1008720, F--628593, G, N, N--photo, W--1473540, Z--photo). Huancavelica: Stork & Horton 10336 (Ca--655852). Department undetermined: Pavon s.n. (Cb); Pearce s.n. [western slope of the Andes, 0°--40° S., 1861--63] (Bm, N).

CITHAREXYLUM DISCOLOR Turcz., Bull. Soc. Nat. Imp. Mosc. 36 (2): 209. 1863.

Synonymy: Citharexylum glandulosum Urb. & Ekm. in Urb., Arkiv. Bot. Stockh. 22a, 17: 107. 1929 [not C. glandulosum Poepp., 1940]. Citarexylum discolor Turcz. ex Alain in León & Alain, Fl. Cub. 4: 301, sphalm. 1957.

Literature: Turcz., Bull. Soc. Nat. Imp. Mosc. 36 (2): 209. 1863; Jacks., Ind. Kew. 1: 549. 1893; O. E. Schulz in Urb., Symb. Antill. 6: 68. 1909; Urb., Arkiv. Bot. Stockh. 22a, 17: 107. 1929; Moldenke, Geogr. Distrib. Avicenn. 5 & 7. 1939; Moldenke, Alph. List Common Names 14. 1939; Moldenke, Prelim. Alph. List Invalid Names 16. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 24, 26, & 88. 1942; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Phytologia 2: 96. 1944; Moldenke, Alph. List Cit. 1: 3, 74, 186—189, 298, & 321 (1946), 2: 338, 408, 448, 487, & 647 (1948), 3: 664, 708, 757, & 868 (1949), and 4: 1068 & 1143. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 43, 47, & 179. 1949; Alain in León & Alain, Fl. Cuba 4: 299 & 301. 1957.

Shrub or small tree; branches and branchlets rather slender, more or less tetragonal (often acutely and sharply so), very light-gray (almost white), glabrous or lightly puberulent; twigs very slender, usually brown in drying, glabrate; nodes annulate on twigs and young shoots, obscurely so on older wood; principal internodes 6—33 mm. long or much shorter; leaf-scars varying from small and appressed to large and circular and borne on stout, greatly swollen, corky sterigmata, which on young shoots have a greatly ampliate-margined apex and on older wood are very corky and 1—4 mm. long and 2 mm. wide; leaves decussate-opposite; petioles slender or very slender, 0.7—3.7 cm. long, ampliate at the base, weak, glabrous or subglabrate; leaf-blades membranous or thin-membranous, very dark-green above, very light-green beneath, oblong or elliptic, 4—11.7 cm. long, 1.7—4.5 cm. wide, acute or very shortly and abruptly acuminate at the apex, entire (or occasionally so abruptly narrowed above into the acumination as to appear 2-toothed there), acute or subcuneate at the base, with 1—3 pairs of large or small black disk-like glands at the very base, glabrous and shiny above (or puberulent along the midrib and larger veins when immature), densely puberulent with extremely minute hair or glabrate and shiny beneath, the midrib and secondaries sometimes strigillose beneath, rather abundantly glandular-punctate beneath and marked with 6—12 scattered black or brown glandular disks; midrib slender or very slender, plane or subimpressed above, prominulous beneath; secondaries very slender, 3—6 pairs, irregular, arcuate-ascending, often anastomosing several mm. from the margins or not anastomosing, plane above, prominulous beneath; vein and veinlet reticulation extremely tenuous and delicate, abundant, obscure or indiscernible above, conspicuous but not at all prominulous beneath; racemes numerous, terminal and terminating short axillary twigs and shoots, mostly erect (or mutant in fruit), abbreviated, 2.5—8.5 cm. long,

simple, many-flowered, 1--1.8 cm. wide; peduncles very slender, 1--2.7 cm. long or less, glabrous or subglabrate, often with 1-3 nodes, each bearing a pair of small foliaceous and caducous bracts or linear bractlets; rachis slender, glabrous or subglabrate; pedicels very slender or filiform, to 1 mm. long, glabrous or subglabrate, elongate to 3 mm. in fruit; prophylla setaceous, 1 mm. long or less; flowers erecto-patent; calyx obconic, about 2 mm. long, 5-costate, glabrous outside, its rim truncate but with the 5 ribs prolonged into 5 tuberculate teeth; corolla white, its tube hypocrateriform, about 7.5 mm. long, villous in the throat, the limb split to about 1/4 its length, glabrous on both surfaces, the lobes 5, oblong; stamens 5; filaments about 0.5 mm. long; anthers about 1 mm. long; pistil short, about 2.5 mm. long; style about 1 mm. long; stigma emarginate, about as wide as the style; ovary ellipsoid; fruiting-calyx cupuliform, slightly indurated, to 2.5 mm. long and 4.5 mm. wide, 5-ribbed, glabrate, its rim 5-angulate or obscurely 5-toothed with extremely shallow teeth; fruit subglobose, 4--7 mm. long and wide, 2-lobed, apiculate when immature, nigrescent in drying, glabrous.

The type of this species was collected by Jean Jules Linden (no. 1826) on Mount Liban, at an altitude of 4000 feet, near Santiago de Cuba, Oriente, Cuba, and is deposited in the herbarium at Kharkov, Russia. The type of C. glandulosum was collected by Erik Leonard Ekman (no. H.5894) on eruptive rock in a shady gulch, at an altitude of 1200 meters, at Morne Malanga, Massif de la Salle, Crête-a-Piquante, Port-au-Prince, Haiti, on April 20, 1926, and is deposited in the herbarium of the Naturhistoriska Riksmuseet at Stockholm. Ekman comments as follows about his plant: "If this is C. lucidum, then it is a most peculiar form." Besides C. lucidum Schlecht. & Cham., the species has been confused with C. caudatum L., C. quadrangulare Jacq., C. tristachyum Turcz., and the genus Cordia. It ascends to 1400 meters in the Sierra Maestra. In the Dominican Republic it has been found at 1100 meters and is said to be "not so rare" between 1500 and 2000 meters altitude. It has been collected in anthesis in April, May, July, and August, and in fruit in May. It is said to inhabit woods, pinelands, and the borders of rivulets. The extremely thin-membranous leaf-blades, whose vein and veinlet reticulation is extremely conspicuous, but not at all prominulous, on the lower surface (usually rather sparse near the midrib), mark this species well. The sterigmata are extremely conspicuous and prominent in some forms (e.g., C. Wright 435). The Bucher collection cited below is placed here tentatively. Its racemes remind one of C. tristachyum, but its leaves are those of C. discolor. At least, it is certainly not C. caudatum as misidentified by Standley. The common name "guayo" is recorded, but applies also to C. fruticosum L. and to Petitia domingensis Jacq.

Fifty-nine herbarium specimens, including the type collections of all the names involved, and 12 mounted drawings and

photographs have been examined.

Citations: CUBA: Oriente: Acuna 9231 (Es), 13862 (Es), s.n. (Es—4231); Alain, Acuña, & López Figueiras 5552 (Sm); G. C. Bucher 1 (F—598810, Y—15996); Ekman 14430 (B, S), 14459 (B, S); León 11074 (Ha, N); López Figueiras 2146 (Z); Linden 1826 (B—isotype, B—drawing of isotype, B—photo of isotype, Bm—isotype, Br—isotype, Cb—isotype, Cb—isotype, Cb—isotype, F-686848—isotype, K—isotype, K—isotype, K—isotype, K—isotype, K—isotype, K—photo of isotype, N—isotype, N—photo of isotype, P—isotype, S—photo of isotype, V—285045—isotype, X—isotype, Z—photo of isotype); Roig & Bucher 6686 (N), s.n. [Herb. Roig 6686] (Es, N); C. Wright 435 [Jan.-Jul. 1859] (G, K), 435 [1860] (Cb, K, L, N, N—photo, Os, P, V—211815, Z—photo). HISPANIOLA: Dominican Republic: Ekman H.11913 (B, N, S), H.12773 (B, N, S, W—1557854); R. A. Howard 12285 (N), 12304 (N). Haiti: Ekman H.5894 (B, B—photo, Ca—608041, F—839448, K—photo, Mi, N, N—photo, S, S, Z—photo); Herb. Lamarck 263 (P); J. Martin 963 (Cb).

CITHAREXYLUM DONNELL-SMITHII Greenm. in Donn. Sm., Enum. Pl. Guatem. 7: 70, hyponym. 1905; Greenm., Field Columb. Mus. Publ. Bot. 2: 186—187. 1907.

Synonymy: Citharexylum caudatum Donn. Sm. ex Greenm., Field Columb. Mus. Publ. Bot. 2: 187, in syn. (in part). 1907 [not C. caudatum L., 1774, not Citharexylon caudatum L.,1763]. Citharexylon odoratissimum Ørst. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940. Citharexylum odoratissimum Ørst. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940 [not C. odoratissimum Schiede & Deppe, 1940]. Citharexylum ghiesbreghtii Moldenke, Phytologia 1: 413. 1940.

Literature: Donn. Sm., Enum. Pl. Guatem. 7: 70. 1905; Greenm., Field Columb. Mus. Publ. Bot. 2: 186—187. 1907; Prain, Ind. Kew. Suppl. 3: 43 (1908) and 4: 49. 1913; Standl., Field Mus. Publ. Bot. 18: 1000. 1938; Moldenke, Geogr. Distrib. Avicenn. 13 & 15—17. 1939; Moldenke, Alph. List Common Names 6, 9, 10, 21, 24, & 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 17. 1940; Moldenke, Phytologia 1: 413. 1940; Calderon & Standl., Fl. Salvad., ed. 2, 236. 1941; Moldenke, Alph. List Invalid Names 14 & 15. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 19, 21—23, 71, & 88. 1942; Moldenke, Phytologia 2: 96. 1944; Moldenke, Alph. List Cit. 1: 5, 39, 88, 89, 142, 234, 268, 320, & 321. 1946; Salisb., Ind. Kew. Suppl. 10: 53. 1947; H. N. & A. L. Moldenke, Plant Life 2: 61 & 84. 1948; Moldenke, Alph. List Cit. 2: 330, 344, 345, 347—349, 351, 389, 390, 424, 447, & 554 (1948), 3: 748, 780, 784, 817, 821, 849, 869, 940, 945, 948, 958—962, 973, & 978 (1949), and 4: 999, 1000, 1019, 1024, 1026, 1031, 1042, 1047—1049, 1052—1055, 1057, 1061, 1082, 1120, & 1303. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 34, 38—40, 157, & 179. 1949; H. N. & A. L. Moldenke, Anal.

Inst. Biol. Mex. 20: 4. 1949; Moldenke, Phytologia 3: 284 (1950) and 5: 24. 1954.

Small, medium-sized, or large expansive tree, to 18 m. tall, or shrub only 1 m. tall; crown broad and dense; trunk to 76 cm. in diameter at the base; bark dark gary-brown or nearly black, much furrowed and roughened in age; branchlets and twigs slender or medium-slender, acutely or obtusely tetragonal, buff or brownish, often very dark, often striate and more or less lenticellate, sparselt strigillose or (usually) perfectly glabrous, more or less shiny; nodes somewhat ampliate, annulate, often oblique; principal internodes 0.7—6 cm. long; leaf-scars large, borne on rather short and more or less conspicuous steigmata; leaves decussate-opposite (or merely approximate with internodes up to 1 cm. in length between the members of a pair); petioles slender or stoutish, 1—2.5 cm. long, not noticeably ampliate at the base, flattened and usually somewhat canaliculate (especially toward the apex) above, obscurely and very sparsely pulverulent-puberulent or more usually glabrous; leaf-blades chartaceous or thin-chartaceous, rather firm, rather uniformly bright- or dark-green on both surfaces or rich-green above and paler beneath when fresh, varying from lanceolate or oblong-lanceolate to elliptic, 4.5—21 cm. long, 2.1—6.5 cm. wide, acuminate at the apex or attenuate to a subacuminate point (rarely obtuse or emarginate on stunted leaves), entire (or rarely dentate with a few, short, acute teeth near the apex), acute or cuneate at the base, with 1—3 pairs of small discoid or oblong glands at the very base, glabrous and sometimes sparsely punctate on both surfaces; midrib rather slender, mostly plane or prominulous within a channel above, prominent beneath, sometimes very sparsely and minutely strigillose-puberulent above; secondaries very slender, 8—15 pairs, numerous and close together, regularly arcuate-ascending, not anastomosing at the margins, flattened or subprominulous above, sharply prominulous beneath; vein and veinlet reticulation fine and very abundant, sometimes prominulous (especially above), not at all conspicuous, with usually many subparallel veinlets extending more or less straight from the midrib to or toward the margins; racemes numerous, much elongate, axillary in the uppermost leaf-axils or (usually) terminal, often crowded at the tips of the branchlets, simple or occasionally compound with 1—3 pairs of lateral branches, the central one 10—45 cm. long, 1—1.8 cm. wide, the lateral ones (when present) about 10 cm. long or less, all densely many-flowered, recurved and nutant or pendent; peduncles slender, 1.5—6 cm. long, sparsely strigillose or (usually) glabrous; rachis slender, glabrous; pedicels slender or very slender, 1—3.5 mm. long, spreading, elongate to 6 mm. in fruit, sparsely strigillose or usually glabrous; bractlets linear, few, to 5 mm. long, glabrate; prophylla setaceous, 1—2 mm. long or less, sessile, sharp-pointed; flowers fragrant; calyx campanulate or tubular-campanulate, 2—3 mm. long, about 2 mm. wide, glabrous except for the puberulent rim, strongly 5-angled in cross-section, sinuately 5-dentate and ciliolate at the rim;

corolla white, yellowish-white, or greenish-white, varying to cream-colored or creamy buff, tubular-campanulate, usually about twice as long as the calyx, 5--8 mm. long, glabrous externally, its tube more greenish-white than the limb, externally glabrous, pubescent within, the limb about 5 mm. in diameter, subequally 5-lobed, the lobes white, spreading, oblong, about 2 mm. long, rounded at the apex, pubescent on the upper (inner) surface, glabrous on the outer (lower) surface; perfect stamens 4, slightly exserted from the corolla-tube; style glabrous; ovary glabrous; fruiting-calyx campanulate, herbaceous, light, to 3 mm. long and 5 mm. wide, glabrous, its rim spreading, subentire or more or less obscurely 5-apiculate, becoming obtusely 5-lobed or -split in age; fruit oblong or oblong-spherical, 6--7 mm. long, about 6 mm. wide, glabrous, extremely shiny and glossy, fleshy, varying from orange to reddish or pale-reddish and very showy when fresh, black or purplish-black to bluish and wrinkled in drying, 2-lobed; pyrenes submeniscoidal, 5--6 mm. long, 3--3.5 mm. wide, smooth.

The type of this species was collected by John Donnell Smith (no. 1879) -- in whose honor it is named -- at Pacaya, Amatitlan, Guatemala, at an altitude of 5500 feet, in March, 1890, and is deposited in the Gray Herbarium of Harvard University at Cambridge, Mass. The type of C. odoratissimum was collected by Anders Sandøe Ørsted (no. 11193) at an altitude of 8000 feet on Mount Barbá, Heredia, Costa Rica, and is deposited in the herbarium of the Universitetets Botaniske Museum at Copenhagen. The type of C. ghiesbreghtii was collected by Auguste Boniface Ghiesbreght -- in whose honor it is named -- in the state of Oaxaca, Mexico, in 1842, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. It is in general more strigillose throughout than the typical material of the species.

The species has been collected in anthesis from December through March and in July and August, and in fruit in January, March, April, and July. It has been confused by some herbarium workers with C. caudatum L., which it closely resembles, and with C. villosum Jacq. [=C. fruticosum var. villosum (Jacq.) O. E. Schulz], which it does not even remotely resemble. It inhabits brushy slopes, mixed oak and pine forests on hills, cafetal, light and moist or wet forests, damp dense forests, roadsides, pastures, wet forested quebradas, densely forested barrancas, mountainsides, the edges of quebradas bordering sugarcane fields, and the clay-loam of pasture lands. It has been found at altitudes of from 1000 to 2650 meters.

The greatly elongate and extremely densely flowered racemes and long narrow-lanceolate leaves characterize this species well. Its pedicels are also longer than is usual in the genus. The leaf-blades are mostly 2.1--4.5 cm. wide -- those that are 5--6.5 cm. wide are exceptional and are not at all typical. Tonduz reports that the tree has a dense and rounded crown. Steyermark calls the leaves "firmly membranaceous" or "subcoriaceous". Standley says that it is abundant in Quezaltenango,

common at altitudes of 1950 to 2400 meters. Smith reports that it is "heavily fruited in April and without flowers at that time", "common and well distributed in Alajuela.....in forests and pastures.....the fruit greatly favored by wild pigeons." He erroneously refers to the flowers as being "in spikes". Among the many common and vernacular names recorded for the plant are "buela noche", "buena noche", "chuul", "cola de pava", "coralillo", "coral negro", "cordencillo", "cordoncillo", "cuul", "dama", "damas", "moca de pava", "moco de pava", "paraiso", "seguilla", "soguillo", "sorguillo", and "uva".

It is cultivated in Guatemala and El Salvador. Calderón reports that the flowers are very fragrant early in the night. The El Salvador form seems to be a much smaller-flowered form, at least insofar as the Calderón and Padilla specimens indicate; the Standley specimens from the same country approach the type in flower-size. Standley states that the species gets to be a tree 30 feet high, with a dense crown and drooping racemes, and is found along roadsides and in cafetal and potrero formations. A form with small short calyxes is exemplified by Skutch 1977, White 214, and Standley 63872, 63874, and 64953. A form with large long calyxes is exemplified by Davidson 483, Standley 63037, Steyermark 35260, and Tonduz 9623. Intermediate-sized calyxes are seen on Smith A.153 and Standley 61269 and 67782. On Standley 63294 there are small, intermediate, and even some rather large calyxes on the same branch, while Pittier s.n. shows intermediate and small ones on the same raceme!

One hundred twenty-nine herbarium specimens, including the types of all the names involved, and 11 mounted photographs have been examined.

Citations: MEXICO: Chiapas: Little & Sharp 9941 (N). Oaxaca: Ghiesbreght s.n. [1842] (N, N--photo, P, Z--photo). GUATEMALA: Amatitlan: Hayes s.n. [July 21, 1860] (G); J. D. Smith 1879 (B--isotype, B--photo of type, C--isotype, G--type, K--isotype, K--photo of type, N--photo of type, S--photo of type, W--42711--isotype, W--1323196--isotype, W--1323197--isotype, Z--photo of type). Escuintla: P. C. Standley 63874 (F--988616, N). Guatemala: Aguilar 92 (F--969020); P. C. Standley 61269 (F--985354), 63037 (F--995429, N). Quezaltenango: Skutch 1977 (F--934284, N); P. C. Standley 33711 (F--1043481), 67782 (F--992777), 67893 (F--979721, N), 83689 (N), 83715 (N). Sacatepéquez: Bernoulli & Cario 3403 (B, K, L); Rojas 324 (B, E--869011, N--photo, W--1014994, Z--photo); P. C. Standley 64953 (F--988176); Steyermark 35260 (F--1057345). Department undetermined: Morales Ruano 636 (W--1316974), 1019 (W--1407194). EL SALVADOR: Ahuachapán: Padilla 301 (N, W--1166784); Pittier 2006 (N, W--578401). La Libertad: M. C. Carlson 228 (N). San Salvador: Renson 216 (N, N--photo, W--399508, Z--photo); P. C. Standley 22988 (G, N, W--1138697). Santa Ana: Calderón 2256 (G, W--1266624). San Vicente: Calderón 341 (G, N, W--1151359),

342 (G, N, W--1151360); P. C. Standley 21531 (G, N, W--1137332). COSTA RICA: Alajuela: A. Smith 4126 (F--905618), H.153 (F--919533). Heredia: Ørsted 11193 (Cp, W--1269902); Tonduz s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 1741] (Br, Br, W--1323200). San José: C. Hoffmann s.n. [12.54] (B); Pittier s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 9624] (F--576910); Pittier & Tonduz 9624 (Bm, Br, Br, W--1323203, W--1323204); Skutch 3098 (N, S); P. C. Standley 32434 (W--1225722), 41706 (F--599151); Standley & Valerio 48045 (W--1305400); Stork 2421 (F--592077, Mi); Tonduz 1419 [521] (Bm, Br, Br, W--1323199), 7855 [1836] (Br, Br, W--1323201, X), 9623 (B, Bm, Br, F--576679, P, W--1323195, W--1323202, X), 9624 (B, L, P, X), s.n. [Herb. Physico-geogr. Nat. Costaric. 11646] (B, Bm, Br, P, P, W--1323205), s.n. [Herb. Physico-geogr. Nat. Costaric. 11796] (B, B, Bm, Br, Br, G, N, N, P, P, S, W--333955, W--392065), s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 12502] (V--10967); Valerio 174 (F--670539). Province undetermined: Tonduz 1274 [1573] (Br, Br, W--1323206), s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 10703] (Cp). PANAMA: Chiriquí: Davidson 483 (F--927597); Peggy White 214 (F--1005200). CULTIVATED: El Salvador: Calderón 1638 (G, W--1168888). Guatemala: Moldenke & Moldenke 19815 (N); P. C. Standley 63294 (F--975840), 63872 (F--985736).

CITHAREXYLUM DRYANDERAE Moldenke, Phytologia 2: 13--14. 1941.

Synonymy: Citharexylum dryanderi Moldenke, Suppl. List Invalid Names 2, in syn. 1941.

Literature: Moldenke, Phytologia 2: 13—14. 1941; Moldenke, Suppl. List Invalid Names 2. 1941; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Alph. List Cit. 1: 166. 1944; H. N. & A. L. Moldenke, Plant Life 2: 57. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 59 & 179. 1949; Moldenke, Alph. List Cit. 4: 1075. 1949; Salisb., Ind. Kew. Suppl. 11: 55. 1953.

Tree, about 5 m. tall; branchlets stout, acutely tetragonal, rather densely farinaceous-puberulent with sordid-brownish furf; nodes flattened, not annulate; leaf-scars very large, ampliate, corky; principal internodes 2--5 cm. long; leaves decussate-opposite; petioles stoutish, 3--4.5 cm. long, rather densely farinaceous-puberulent like the branchlets, wrinkled-striate in drying, ampliate at the base; leaf-blades coriaceous, gray-green and shiny above, yellow-green beneath, elliptic, 11—19 cm. long, 3--7 cm. wide, acute at the apex, entire, usually acute (sometimes rounded) at the base, glabrous above, densely appressed-tomentellous or furfuraceous with yellowish furf beneath, bearing 2 large prominent glands parallel to the petiole at the very base; midrib stout, impressed above, very prominent beneath; secondaries slender, 10--15 per side, arcuate-ascending, flat and rather inconspicuous above, very prominent and glabrous beneath; veinlet reticulation abundant, flat and often rather inconspicuous above, the larger portions

prominulous and glabrous beneath; inflorescence racemose-subspicate, 8—14 cm. long, many-flowered, solitary in the upper axils, erect; flowers not seen; fruiting-peduncles stout, 1—2.5 cm. long, more or less densely appressed-furfuraceous; rachis in fruit stout and wrinkled-striate, densely appressed-furfuraceous with brownish furf; fruiting-pedicels stout and incrassate, about 1 mm. long or less, densely appressed-furfuraceous; fruiting-calyx indurated, 5—6 mm. long, 9—10 mm. wide, venose, glabrate, the rim irregularly lobed; fruit drupaceous, red, fleshy, oblong-elliptic, 7—12 mm. long, 5—9 mm. wide, glabrous, shiny.

The type of this species was collected by Editha Ida Dryander (no. 2362) — in whose honor it is named — at an altitude of 2000 meters in Valle del Cauca, Colombia, fruiting in May, 1939, and is deposited in the United States National Herbarium at Washington. Two herbarium specimens and 2 mounted photographs have been examined.

Citations: COLOMBIA: Valle del Cauca: Dryander 2362 (N—isotype, N—photo of type, W—1778716—type, Z—photo of type).

CITHAREXYLUM EKMANI Moldenke, Geogr. Distrib. Avicenn. 5, nom. nud. (1939), Carib. Forester 2: 13. 1940.

Synonymy: Citharexylum ekmanii Moldenke ex Alain in León & Alain, Fl. Cuba 4: 301, sphalm. 1957.

Literature: Moldenke, Geogr. Distrib. Avicenn. 5. 1939; Moldenke, Carib. Forester 2: 13. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 24 & 88. 1942; Moldenke, Alph. List Cit. 1: 187. 1946; H. N. & A. L. Moldenke, Plant Life 2: 57. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 43 & 179. 1949; Salisb., Ind. Kew. Suppl. 11: 55. 1953; Alain in León & Alain, Fl. Cuba 4: 299 & 301. 1957.

Shrub; branches and branchlets very acutely tetragonal with margined angles, brown, striate between the angles, very obscurely puberulent or glabrate; nodes annulate; principal internodes 2—5 cm. long; leaves decussate-opposite; petioles very slender, 5—9 mm. long, minutely puberulent or glabrate; leaf-blades membranous, very dark-green on both surfaces, brunnescent or nigrescent in drying, sometimes slightly lighter beneath, ovate-elliptic or lanceolate, 2.5—8.5 cm. long, 1.5—3.5 cm. wide, acuminate or even subcaudate at the apex, subentire or (usually) sparsely and irregularly coarse-dentate with 1—3 large acute or obtuse teeth on each side, very sparsely strigillose above or glabrate in age, densely strigillose-pubescent with distichous hairs along the midrib, secondaries, and larger venation beneath, the pubescence more dense on immature leaves and then extending also to the lamina, especially toward the base, beneath; midrib very slender, flat above, very slightly prominulous beneath; secondaries very slender, 3—5 per side, arcuate-ascending, not anastomosing, very slightly prominulous beneath; vein and veinlet reticulation very fine and delicate, indiscernible above, not at all prominulous beneath; inflorescence and fruit not seen.

The type of this species was collected by Erik Leonard Ekman (no. 13889) — in whose honor it is named — among steep overhanging rocks in the mountains at Lomas de Siguanca, Las Villas, Cuba, on June 4, 1922, and is deposited in the herbarium of the Naturhistoriska Riksmuseet at Stockholm. The only other known collection of the species is from rocky hills at Río Navarro, south of Cumanayagua, in the mountains of the Siguanca-Trinidad group, Las Villas, and was collected on February 15, 1924. Both collections are sterile. It is hoped that more and better material will soon be available. Only 4 herbarium specimens, including the type, and 4 mounted photographs have been examined.

Citations: CUBA: Las Villas: Ekman 13889 (B—isotype, N—photo of type, S—type, Z—photo of type), 18528 (N, N—photo, S, Z—photo).

CITHAREXYLUM ELLIPTICUM Sessé & Moc. ex D. Don, Edinb. New Philos. Journ. 11 (Jan.—Mar.): 238. 1831.

Synonymy: Citharexylum lucidum D. Don, Edinb. New Philos. Journ. 11 (Jan.—Mar.): 238. 1831 [not C. lucidum Schlecht. & Cham., 1830, nor Cham., 1861, nor Griseb., 1909, nor C. DC., 1942]. Citharexylum scariosum Sessé & Moc. ex D. Don, Edinb. New Philos. Journ. 11 (Jan.—Mar.): 238. 1831. Citharexylon scariosum Moc. & Sessé apud Walp., Repert. 4: 75. 1845. Citharexylon ellipticum Moc. & Sessé apud Walp., Repert. 4: 75. 1845. Citharexylum scariosum Moc. & Sessé apud Schau. in A. DC., Prodr. 11: 614. 1847. Citharexylum ellipticum Moc. & Sessé ex Jacks., Ind. Kew. 1: 549. 1893. Citharexylum reticulatum Cham. ex O. E. Schulz in Urb., Symb. Antil. 6: 69, in syn. 1909 [not C. reticulatum H.B.K., 1817, nor Donn. Sm., 1907]. Cytharexilum scariosum Sessé & Moc. ex Moldenke, Prelim. Alph. List Invalid Names 24, in syn. 1940. Cytarexilum ellipticum Sessé & Moc. ex Moldenke, Prelim. Alph. List Invalid Names 24, in syn. 1940. Cutarexilum ellipticum Sessé & Moc. ex Moldenke, Suppl. List Invalid Names 3, in syn. 1941. Cithaexylum ellipticum Sessé & Moc. ex Roig, Plant. Medic. 778, sphalm. 1945. Cithaexylon ellipticum Sessé & Moc. ex Moldenke, Alph. List Invalid Names Suppl. 1: 4, in syn. 1947. Citarexylum ellipticum Sessé & Moc. ex Alain in León & Alain, Fl. Cuba 4: 298 & 299. 1957. Citarexylum reticulatum Cham. ex Alain in León & Alain, Fl. Cuba 4: 299, in syn. 1957. Citharexylum affine Linden, in herb. [not C. affine D. Don, 1831, nor Mart. & Gal., 1940, nor Citharexylon affine Mart. & Gal., 1844].

Literature: D. Don, Edinb. New Philos. Journ. 11 (Jan.—Mar.): 238. 1831; Walp., Repert. 4: 74—75. 1845; Schau. in A. DC., Prodr. 11: 614. 1847; Jacks., Ind. Kew. 1: 549—550. 1893; O. E. Schulz in Urb., Symb. Antil. 6: 69. 1909; Roig y Mesa, Est. Exp. Agron. Santiago Vegas Bol. 54: 39 & 793. 1928; Moldenke, Annot. List 108. 1939; Moldenke, Alph. List

Common Names 2. 1939; Moldenke, Geogr. Distrib. Avicenn. 5, 13, & 36. 1939; Moldenke, Prelim. Alph. List Invalid Names 16, 17, & 24. 1940; Moldenke, Suppl. List Invalid Names 3. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 24, 71, & 88. 1942; Moldenke, Alph. List Invalid Names 14, 15, 22, 23, & 58. 1942; Moldenke, Phytologia 2: 96. 1944; Roig y Mesa, Plant. Medic. 778. 1945; Moldenke, Alph. List Cit. 1: 66, 138, 187, 218, 243, 246, 251, 261, 272, 306, 307, 309, 312, 314, & 323. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 4 & 5. 1947; Moldenke, Phytologia 2: 387. 1947; Moldenke, Alph. List Cit. 2: 339, 349, 419, 422, 431, 437, 486, 487, 499, 500, 569, 578, 579, 646, 648, 651, & 652 (1948), 3: 656, 659, 663, 668, 743, 754, 771, 779, 801, 834, 867, 886, 900, & 926 (1949), and 4: 986, 1028, 1029, 1036, 1065, 1068, 1084, 1085, 1216, 1231, 1295 & 1304. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 43, 157, & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949; Roig y Mesa, Dicc. Bot. 1: 94, 283, & 910 and 2: 1003. 1953; P. Ponce de Leon, Rev. Soc. Cub. Bot. 10: 23. 1953; Moldenke, Journ. Calif. Hort. Soc. 15: 85. 1954; Alain in León & Alain, Fl. Cuba 4: 298 & 299. 1957.

Straggling or scandent shrub or small tree, to 4 m. tall, spreading to 8 m.; branches and branchlets medium-stout, yellow-brown or gray, medullose, rather sharply tetragonal, prominently many-ribbed, densely or rather sparsely short-puberulent toward the apex, becoming glabrate in age; nodes annulate; principal internodes 0.9—5.5 cm. long; leaf-scars borne on very short ascending sterigmata or the sterigmata becoming greatly enlarged and corky on older branches; leaves decussate-opposite or occasionally subopposite; petioles slender or rather ampliate in age, 3—9 mm. long, glabrous, usually more or less margined on mature leaves; leaf-blades firmly chartaceous or subcoriaceous, uniformly green on both surfaces, often very light- or grayish-green, elliptic, 3—9.1 cm. long, 1.5—5.4 cm. wide, obtusely rounded and emarginate at the apex or obtusely rounded to a very short cucullate acumination, entire or slightly and irregularly undulate along the margins, varying from rounded to acute or subcuneate at the base, bearing a pair of small or elongate glands at the very base, glabrous on both surfaces (or occasionally very obscurely puberulent on the midrib and venation), mostly dull; midrib very slender, prominulous on both surfaces; secondaries very slender, 3—5 pairs, ascending, not very arcuate, prominulous on both surfaces; vein and veinlet reticulation decidedly and conspicuously prominulous on both surfaces on mature leaves; racemes axillary in the uppermost leaf-axils and terminal, 9—23 cm. long, 1—1.7 cm. wide, many-flowered, mostly erect, sometimes bearing 1 or 2 branches at or near the base; peduncles stout, ribbed, puberulent or glabrous, 1—6.7 cm. long, sometimes bearing bracteate or bracteolate nodes; rachis stout or stoutish, puberulent or glabrate, ribbed; pedicels slender, 1—2 mm. long, elongate to 4 mm. in fruit, puberulent or glabrate; bracts more or less foliaceous, of various shapes and dimensions, caducous; bractlets linear, 5—10 mm. long, often

absent; prophylla setaceous, 1—2 mm. long, puberulent or canescent; corolla white; fruiting-calyx indurated, cupuliform or eventually patelliform, about 3.5 mm. long, 5—6 mm. wide, obscurely puberulent or glabrous, ribbed, its rim truncate and entire; fruit subglobose, 4—9 mm. long and wide, fleshy, orange-red (or black when mature?), black in drying, becoming somewhat wrinkled in drying, glabrous, very shiny, apiculate by the persistent style when immature.

The type of this species was collected by Martin Sessé, José Mariano Mociño, Castillo, and Maldonado (no. 2366) in Mexico, and is deposited in the herbarium of the Jardin Botanico at Madrid. It is labeled "Cytarexilum ellipticum. N." The species has been collected in anthesis from January through March and from June through September, and in fruit in January, March, April, and from June through August. It often attains a height of only about 1 meter. The subcoriaceous, glabrous, elliptic leaves, which are rounded and mostly emarginate or else rounded to a short cucullate (caudate and curvate) acumination at the apex and whose nervation is decidedly prominulous and conspicuous on both surfaces, characterize this species well, as also its prominently ribbed branches, branchlets, twigs, peduncles, rachis, and calyx. It has been confused by herbarium workers with C. fruticosum L., C. tristachyum Turcz., C. reticulatum H.B.K., C. coriaceum Desf. [=C. fruticosum L.], C. cinereum Sessé & Moc. [=C. fruticosum], and C. cinereum L. [=C. fruticosum]. The Taylor collection exhibits one leaf that has a sparsely sharp-dentate margin; Don includes C. cinereum Sessé & Moc. in the synonymy of his C. lucidum, but Sessé & Mociño's type specimen was from Puerto Rico and therefore cannot represent that species.

Jack reports the species as a "coarse spreading shrub, 10 feet high, spreading 20—25 ft." and as "a straggling shrub" and "coarse scandent shrub or small tree". The fruit is said by him to be black at maturity even when fresh, but Greenman states that in Mexico the fruit is red when fresh (perhaps still immature?). Britton and Wilson also describe the fruit as orange-red in Cuba.

Most of the Cuban specimens are taken from cultivated material, but a few are apparently from escaped or naturalized plants, as may be inferred from Ekman 17200, which was collected "on cliffs along the beach" at Matanzas City, while the León, Victorin, & Alain 19722 is from a "wayside" in Matanzas. In Mexico, where it is native, it inhabits sand dunes. Lluy records the vernacular name "anacahueta" and states that the plant has medicinal properties. Roig adds the names "anacahuita", "anacagüita", "citarexilon", and "verbenato". The Hartling collection, cited below, is from a plant which was grown from seeds of N. L. Britton 508, originally collected in Havana in 1905.

Schauer cites C. affine Mart. & Gal. as a synonym of this species, but that name actually belongs in the synonymy of C.

hexangulare Greenm. The LeSueur 640 collection cited below is not at all typical. Its leaves are very thin-membranous, small, rounded-elliptic, often with a pair of coarse rounded teeth near the apex, much resembling forms of C. berlandieri B. L. Robinson, but without the latter's pubescence. In all, 152 herbarium specimens, including the types of all the names involved, and 5 mounted photographs and descriptions have been examined.

Citations: MEXICO: Veracruz: Galeotti 7001 (Cb, P), 7097 (Br); Gouin s.n. [29.X.1867] (N, P, P); Greenman 56 (F--189521, F--189975, G, N, N--photo, W--752569, Z--photo); Houstoun s.n. [1730] (Bm); LeSueur 640 (Au, F--1003664, Fs); Liebmann 11361 (Cp, F--614007); Linden 11 (Br, Br, K), 71 (K); F. Müller 203 (N, N); Orcutt 2904 (Du--155521, F--279032); Purpus 6142 (Bm, Ca--168096, E--704896, F--386653, G, N, W--464664); Rutten & Rutten-Pekelharing 842 (Ut); Schiede 127 (Mu--762); Schiede & Deppe 127 (B, B, E--119060, L, L, V); Von Chrismar s.n. (B, B, B). State undetermined: Pavon s.n. [Nueva España] (X, X); Sessé Mociño, Castillo, & Maldonado 2365bis (F--849579, Q), 2366 (F--849564--isotype, N--photo of type, Q--type, Z--photo of type), 2368 (F--851465, Q). CUBA: Havana: León 7085 (Ha). Matanzas: Ekman 17200 (B, N, S); León 7814 (Ha, N), 8799 (Ha, N), 13905 (Ha, N); León & Roca 7874 (N); León, Victorin, & Alain 19722 (Ha, N, N); Rutten & Rutten-Pekelharing 148 (Ut, Ut). CULTIVATED: California: Wells, Lammerts, & McClintock s.n. [October 30-31, 1944] (N). Cuba: Britton & Wilson 508 (N); Curtiss 621 [Jan. 28] (A, B, B, Bm, Cb, Cb, Cm, Cp, D--571391, E--119073, Ed, Es, F--184707, G, It, K, Le, Mu--4000, N, P, Vt, W--522242), 621 [April 23] (A, B, B, Bm, Cb, Cb, Cm, Cp, D--571391, E--119073, Ed, Es, F--184707, G, It, K, Le, Mu--4000, N, P, Vt, W--522242); Jack 7353 (A, Cp), 7662 (A, Ba, N, S, W--1478236), 8460 (A, N, W--1556366); León 7085 [Herb. Roig 5783] (Es, N); Lluy s.n. [Herb. Roig 3600] (Es); Moldenke & Moldenke 19891 (Es, F, Lg, Mg, Mo, N, No, Ot, S, Sm), 20598 (Fy, Fy, N); Van Hermann 2698 (B, Ca--139879, F--189072, Po--63527), 7698 (A, Es, N). New York: Hartling s.n. [N. Y. Bot. Gard. Cult. Plants 19267] (Ur); H. N. Moldenke 8380 (Br, N, N, Z); N. Taylor s.n. [N. Y. Bot. Gard. Cult. Plants 19267] (N). MOUNTED DESCRIPTIONS: Original description of C. lucidum (F--227194).

CITHAREXYLUM ENDLICHII Moldenke in Fedde, Repert. 37: 222.1934.

Literature: Moldenke in Fedde, Repert. 37: 222. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Alph. List Common Names 21. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 88. 1942; Moldenke, Phytologia 2: 96. 1944; Moldenke, Alph. List Cit. 1: 192. 1946; H. N. & A. L. Moldenke, Plant Life 2: 58. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29 & 179. 1949.

Shrub, to 2 m. tall; branches stout, woody, stiff, black or

dark-brown; branchlets woody, stoutish, obscurely tetragonal, short, stiff, irregular, black or very dark-brown, furfuraceous-puberulent, with very dark or blackish hairs; young shoots slender, very densely pubescent with rather long, regular, canescent hairs; nodes not discernibly annulate; principal internodes greatly abbreviated, 2--14 mm. long; leaf-scars borne on comparatively large and very prominent sterigmata; leaves numerous, decussate-opposite, crowded; petioles slender, 3--6 mm. long, densely pubescent; leaf-blades firmly chartaceous, dark-green on both surfaces, oblong-elliptic or obovate in outline, 1.6--2.8 cm. long, 7--15 mm. wide, triangular-acute at the apex, coarsely and deeply dentate along the margins above the middle or to the middle, with 2, 4, or 6 large antrorse (often almost lobe-like) teeth, distinctly revolute throughout, acute or subcuneate at the base (the glands not apparent), densely short-pubescent on both surfaces, especially along the larger venation beneath; midrib extremely slender, impressed above, prominulous beneath; secondaries extremely slender, 3--5 pairs, ascending, not at all arcuate, impressed above, slightly prominulous beneath; veinlet reticulation fine, conspicuously impressed above, obscure beneath; racemes abbreviated to 1 or 2 flowers, axillary or terminal; peduncles slender, 1--3 mm. long, canescent-pubescent; flowers not seen; fruiting-pedicels 1--2 mm. long, pubescent or puberulent; bracts and bractlets absent; fruiting-calyx cupuliform, about 3.5 mm. long and 6.5 mm. wide, densely puberulent or short-pubescent, light and herbaceous in texture, its rim 5-apiculate, with the apiculations about 1 mm. long; fruit subglobose or oblong, to 6 mm. long and 5.5 mm. wide, 2-lobed, fleshy, glabrous, shiny.

The type of this species was collected by Rudolf Endlich (no. 217) -- in whose honor it is named -- in the Sierra de Yamón, at an altitude of 2400 meters, Durango, Mexico, on September 2, 1903, and is deposited in the herbarium of the Botanisches Museum at Berlin. The collector records the vernacular name "manzano del cerro". The species reminds one of C. flabellifolium S. Wats. in its leaf-form. Only the type specimen and 4 mounted photographs have been examined.

Citations: MEXICO: Durango: Endlich 217 (B--type, K--photo of type, N--photo of type, S--photo of type, Z--photo of type).

CITHAREXYLUM EOLIGNITICUM Berry, U. S. Geol. Surv. Prof. Paper 91: 346--347 & 455, pl. 106, fig. 10 [as "Citharexylon"]. 1916; Moldenke, Geogr. Distrib. Avicenn. 41. 1939.

Literature: Berry, U. S. Geol. Surv. Prof. Paper 91: 346--347 & 455, pl. 106, fig. 10. 1916; Knowlton, U. S. Geol. Surv. Bull. 696: 177. 1919; Moldenke, Geogr. Distrib. Avicenn. 41. 1939; Moldenke, Prelim. Alph. List Invalid Names 15. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 75 & 88. 1942; Moldenke, Alph. List Invalid Names 13. 1942; H. N. & A. L. Moldenke, Plant Life 2: 42. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 166 & 179. 1949.

Illustrations: Berry, U. S. Geol. Surv. Prof. Paper 91: pl.

106, fig. 10. 1916.

Petioles short, very stout; leaf-blades ovate-lanceolate in outline, about 8 cm. long, about 2.75 cm. wide at the mid-point, slightly falcate, narrowed to an obtuse point at the apex, entire but somewhat irregular at the margins, cuneate at the base; midrib stout, curved, prominent; secondaries relatively stout, prominent, numerous, about 12 subopposite to alternate pairs, subparallel and camptodrome, relatively straight, diverging from the midrib at an angle of about 50°; tertiaries obsolete.

This fossil species is based on two collections, one found in the Holly Springs sand at Holly Springs, Marshall County, Mississippi, by Edward Wilber Berry, and the other in the Grenada formation at Grenada, Grenada County, Mississippi, by Ephraim Noble Lowe and Edward Wilber Berry, both specimens deposited in the United States National Museum at Washington. These strata are part of the Wilcox formation of Lower Eocene age. According to Berry, the species is rare in this formation and is closely related to "C. villosum Jacq." [by which he probably means C. fruticosum L.], differing merely in its more numerous, straighter, and less ascending secondaries in the leaf-blades.

CITHAREXYLUM FLABELLIFOLIUM S. Wats., Proc. Amer. Acad. 24: 67—68. 1889.

Synonymy: Citharexylum flabelliforme S. Wats. ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Cacocalyx flabellifolium S. Wats. ex Moldenke, Alph. List Invalid Names 7, in syn. 1942. Citharexylum flabelliformis Wats. ex Gentry, Allan Hancock Pacific Exped. 13 (2): 238, sphalm. 1949.

Literature: S. Wats., Proc. Amer. Acad. 24: 67—68. 1889; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 16. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 88. 1942; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Alph. List Cit. 1: 57 & 233. 1946; Moldenke, Phytologia 2: 330. 1947; Moldenke, Castanea 13: 114. 1948; Moldenke, Alph. List Cit. 2: 331, 343, 500, 587, & 592 (1948), 3: 769, 785, & 933 (1949), and 4: 1020, 1030, 1121, 1126, 1239, 1242, 1244, 1245, & 1247. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 34, & 179. 1949; H. S. Gentry, Allan Hancock Pacific Exped. 13 (2): 113 & 238. 1949; Shreve & Wiggins, Carnegie Inst. Wash. Publ. 591: 88 & 95. 1951.

Stiff, stout, twiggy, and intricately though openly branched shrub, to 3 m. tall; branches and branchlets medium-slender, subterete, gray, medullose, densely canescent-puberulent with short hairs, becoming glabrate in age, marked with 4 very slender straight and parallel canaliculae arranged in opposite pairs; twigs and young shoots stout and heavy, very light-gray, more or less acutely tetragonal, densely canescent-pubescent, often spine-tipped; nodes not annulate; principal internodes 4—20 mm. long; leaf-scars small, borne on short and slender sterigmata; leaves decussate-opposite, but mostly clustered on

extremely short spur-like or knob-like lateral twigs; petioles very slender, 2--4 mm. long, densely canescent-pubescent; leaf-blades thin-chartaceous, dark-green and uniformly colored on both surfaces, nigrescent in drying, flabelliform, 0.6--1.6 cm. long, 0.7--1.7 cm. wide, rounded or subtruncate in outline at the apex, acutely narrowed to the cuneate base, regularly dentate almost to the middle with broad more or less apiculate teeth, rather densely or sparsely puberulent on both surfaces, especially along the larger venation beneath; midrib slender, plane above, promihulous beneath; secondaries very slender, about 3 pairs, ascending, not at all arcuate, each ending in a tooth-apiculation; vein and veinlet reticulation indiscernible; racemes terminal or on short leafy spurs, 2.5--9 cm. long, 1--1.5 cm. wide, very loosely 5--15-flowered, the flowers distant, alternate or subopposite, often reflexed, each subtended by a comparatively large bractlet; peduncles 5--11 mm. long, canescent-pubescent; rachis similar to the twigs, canescent-pubescent; pedicels very slender, 1--2 mm. long, elongate to 4 mm. in fruit, canescent-pubescent; bractlets one subtending each flower, conspicuous, lanceolate, 3--6 mm. long, about 1.5 mm. wide, pubescent; prophylla linear, 1--3 mm. long, often several subtending each pedicel, pubescent; flowers very sweet-scented; calyx about 6 mm. long, 5-nerved and -angled, the rim acutely toothed, becoming thin and dilated and loosely enclosing the fruit; corolla dark-violet or pale-purple, about 12 mm. long, the tube yellowish, shorter than the calyx, tomentose within, the limb broadly expanded, the lobes nearly equal, rounded; fifth stamen anantherous; fruiting-calyx light, thin, slightly obvolute to as to include the immature fruit, later splitting irregularly to the base as the fruit matures, sparsely puberulent in 5 parallel lines leading to the 5 apiculations, splitting between these lines where the substance becomes more scarious; fruit oblong-subglobose, 4--6 mm. long and wide, 2-lobed, glabrous, not fleshy, rugate-wrinkled and dull black in drying.

The species was based on two collections made by Edward Palmer, and both called no. 237, in mountain ravines at Guaymas, Sonora, Mexico, one in September (flowers) and the other in November (fruit) of 1887, the original cotypes deposited in the Gray Herbarium of Harvard University. The species is remarkable for its canaliculate branches, its flabelliform leaf-blades, and its extremely large flowers. The numerous spur-like twigs are also noteworthy features, possesses also, however, to greater or less degree by other small-leaved species such as C. brachyanthum (A. Gray) A. Gray. The canaliculations are distinctive of this species and offer the most reliable method of identification. It has been collected in anthesis from September through December and in March and April, and in fruit from October through December and in May. Shreve 6115 is anomalous in being bright-green on both leaf-surfaces, not having discolored at all in drying. Gentry 4721 is said to be a topotype collection, made at the type locality. Shreve 7186 exhibits 3

very fine flowers on the Shreve Herbarium specimen.

The species is said to grow in coarse calcareous soil in open mesquite grasslands of lowlands, in coarse granite sand on bluffs, and in ravines and on benches along the ocean-front. Johnston calls the fruit "more or less baccate", implying that it is fleshy when fresh, a feature not apparent on the herbarium material examined.

Curiously, this species is not listed in the "Index Kewensis" nor any of its supplements. Watson, in the original publication, apparently intended to erect a new genus for this plant, called Cacocalyx, since he published the name as "Citharexylum (Cacocalyx) flabellifolium" and commented "Differs from Citharexylum in foliage, in the large violet flowers, and in the calyx enveloping the fruit." He also notes that the juice of the fruit makes a persistent black stain.

In all, 43 herbarium specimens, including the types of all the names involved, and 5 mounted photographs have been examined.

Citations: MEXICO: Baja California: Brandegee s.n. [March 26, 1889] (Ca--169701, D, Os); Hammerly 207 (Du--295384, Gg--294853); D. A. Johansen 596 (Du--206490); Nelson & Goldman 7293 (W--565380), 7347 (W--565427); Shreve 7186 (Du--263401, F--892629, Fs); J. Whitehead 823 (Du--248537). Sonora: H. S. Gentry 4271 (Du--274307, Me, N); Edw. Palmer 237 [Sept.] (B--photo of cotype, Bm--cotype, C--cotype, Cp--cotype, G--cotype, K--cotype, K--photo of cotype, N--photo of cotype, Os--cotype, Pa--cotype, S--photo of cotype, W--46917--cotype, W--1323207--cotype, Z--photo of cotype), 237 [Nov.] (B--photo of cotype, Bm--cotype, C--cotype, Cp--cotype, G--cotype, K--cotype, K--photo of cotype, N--photo of cotype, Os--cotype, Pa--cotype, S--photo of cotype, W--46917--cotype, W--1323207--cotype, Z--photo of cotype); Shreve 6115 (F--682953, Me, N); Wiggins 6334 (Du--244141). CARMEN ISLAND: I. M. Johnston 3840 (Gg--31063).

CITHAREXYLUM FLEXUOSUM (Ruíz & Pav.) D. Don, Edinb. New Philos. Journ. 11 (Jan.--Mar.): 237. 1831.

Synonymy: Rauwolfia flexuosa Ruíz & Pav., Fl. Peruv. & Chil. 2: 26, pl. 152, fig. a.1799. Rauwolfia macrophylla Ruíz & Pav., Fl. Peruv. & Chil. 2: 26, pl. 152, fig. b. 1799. Citharexylum spinosum H.B.K., Nov. Gen. & Sp. Pl. 2: 256. 1817 [not C. spinosum L., 1753]. Citharexylon spinosum Kunth ex Spreng., Syst. Veg., ed. 16, 2: 764. 1825. Citharexylum retusum D. Don, Edinb. New Philos. Journ. 11 (Jan.--Mar.): 237. 1831. Citharexylon spinosum H. & B. ex Steud., Nom. Bot., ed. 2, 1: 375. 1840. Citharexylon flexuosum D. Don ex Walp., Repert. 4: 72. 1845. Citharexylon retusum D. Don ex Walp., Repert. 4: 72. 1845. Citharexylon spinosum H.B.K. apud Walp., Repert. 4: 73. 1845. Duranta buxifolia Willd. ex Walp., Repert. 4: 73, in syn. 1845 [not D. buxifolia Poir., 1847]. Citharexylum spinos-

um Kunth apud Schau. in A. DC., Prodr. 11: 610. 1847. Citharexylon megacanthum Rusby, Bull. N. Y. Bot. Gard. 8: 115—116. 1912. Citharexylum megacanthum Rusby apud Prain, Ind. Kew. Suppl. 5: 60. 1921. Citharexylum speciosum Macbr. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940. Marexylon quadrangulare Zucc. ex Moldenke, Prelim. Alph. List Invalid Names 32, in syn. 1940. Rauwolfia emarginata Ruíz & Pav. ex Moldenke, Prelim. Alph. List Invalid Names 39, in syn. 1940. Citharexalum spinosum H.B.K. ex Moldenke, Suppl. List Invalid Names 2, in syn. 1941. Citharexylum speciosum H.B.K. ex Moldenke, Suppl. List Invalid Names 2, in syn. 1941. Rauvolfia emarginata Ruíz & Pav. ex Moldenke, Alph. List Invalid Names 40, in syn. 1942. Citharexylum fleeuosum (Ruíz & Pav.) D. Don ex Moldenke, Alph. List Cit. 3: 880, sphalm. 1949. Citharexylon spinosa H.B.K., in herb. Rauwolfia spinosa Ruíz, in herb. Turncasa flexuosa Ruíz & Pav., in herb. Turncasa macrophylla D. Don, in herb.

Literature: Ruíz & Pav., Fl. Peruv. & Chil. 2: 26, pl. 152, figs. a & b. 1799; Jacq., Hort. Schönbr. 4: 51, pl. 500. 1804; H.B.K., Nov. Gen. & Sp. Pl. 2: 256. 1817; Spreng., Syst. Veg., ed. 16, 2: 764. 1825; D. Don, Edinb. New Philos. Journ. 11 (Jan.—Mar.): 237. 1831; Steud., Nom. Bot., ed. 2, 1: 375. 1840; Walp., Repert. 4: 72—73. 1845; Schau. in A. DC., Prodr. 11: 610. 1847; Jacks., Ind. Kew. 1: 549 & 550. 1893; Rusby, Bull. N. Y. Bot. Gard. 8: 115—116. 1912; Prain, Ind. Kew. Suppl. 5: 60. 1921; Moldenke in Fedde, Repert. 37: 222—223. 1934; Moldenke, Alph. List Common Names 31. 1939; Moldenke, Geogr. Distrib. Avicenn. 23 & 36. 1939; Moldenke, Prelim. Alph. List Invalid Names 15, 17, 25, 32, & 39. 1940; Moldenke, Suppl. List Invalid Names 2. 1941; Moldenke, Alph. List Invalid Names 13, 15, 23, 33, & 40. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 34, 71, & 88. 1942; Bol. Mus. Hist. Nat. Jav. Prado 7: 245. 1943; Moldenke, Phytologia 2: 96. 1944; Moldenke, Alph. List Cit. 1: 50, 118, 243, & 317 (1946), 2: 338, 344, 347, 357, 407, 408, 434, 459, 530, 560—562, 566, 573, 581, & 611. 1948; H. N. & A. L. Moldenke, Plant Life 2: 44. 1948; Moldenke, Alph. List Cit. 3: 686, 691, 694, 697, 713, 801, 838, 850, 880, 881, & 957 (1949) and 4: 1016, 1020, 1046, 1060, 1112, 1134, & 1232. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 71, 157, & 179. 1949; Moldenke, Rev. Sudam. Bot. 8: 173. 1950.

Illustrations: Ruíz & Pav., Fl. Peruv. & Chil. 2: 26, pl. 152, figs. a & b. 1799; Jacq., Hort. Schönbr. 4: pl. 500. 1804.

Low, spreading, very spiny shrub or small tree, to 7 m. tall; branches and branchlets medium or stout, gray or brown, often very shiny, woody, obscurely and minutely puberulent on the younger parts, soon becoming glabrous, rather indistinctly and obtusely tetragonal or sometimes very acutely so and several-ribbed, often slightly flattened and ampliate at the nodes, well-armed with short, stout, lateral, axillary branchlets which are modified into spines 0.7—5 cm. long, sharp at the

apex, broad at the base, sometimes 2-branched with each branch also spinescent, glabrous, shiny, sometimes becoming leaf- and raceme-bearing and in such cases usually spinescent at every node; short lateral twigs and shoots borne in a secondary-axillary manner and apparently issuing from the adaxial side of the sterigmata after the leaf has fallen therefrom, mostly racemiferous; nodes annulate; principal internodes 0.5—3.5 cm. long; leaf-scars borne on large, prominent, ascending, corky sterigmata 1.5—3.5 mm. long; leaves decussate-opposite, mostly confert on the short axillary and secondary-axillary branchlets and twigs; petioles slender, 3—15 mm. long, pubescent; leaf-blades membranous, dark-green on both surfaces or slightly lighter beneath, oblong or elliptic or slightly obovate, 2.2—5.8 cm. long, 0.7—3 cm. wide, obtusely rounded or subemarginate at the apex, entire or very sparingly subserrate along the upper margin, acute or subcuneate at the base, sparsely short-pubescent or puberulent (especially along the midrib) above, becoming glabrate, densely short-pubescent beneath; midrib slender, plane or subimpressed above, prominent beneath; secondaries very slender, 5—7 pairs, ascending, somewhat arcuate, not anastomosing, plane or subimpressed above, prominulous beneath; vein and veinlet reticulation fine, often subimpressed above and prominulous beneath; racemes numerous, terminating short secondary-axillary branchlets and twigs, 1.5—2.5 cm. long, few-flowered; peduncles slender, 2—5 mm. long, pubescent; pedicels filiform, about 1 mm. long, pubescent, elongated to 2 or 2.5 mm. in fruit; bracts and bractlets apparently none; prophylla setaceous or linear, about 1 mm. long, not obvious; flowers very fragrant; calyx campanulate or tubular-campanulate, membranous, pentagonal, 5-nerved, pubescent, its rim obtusely 5-dentate; corolla varying from white, dirty-white, or creamy-white to yellowish-white, greenish-cream, or even pale-yellow or yellowish, in all about twice as long as the calyx, waxy, the tube subequaling or shorter than the calyx, the throat villous, the limb 5-lobed, villous, the lobes spreading, equal, subrotund, densely hairy on the inner surface with white hairs, violet externally; stamens 4 or 5, equal, subincluded; filaments very short; anthers sagittate, waxy, 2-celled; style included; stigma subcapitate; ovary subglobose, 2-celled, the placentation axile; fruiting-calyx cupuliform, eventually almost patelliform, 2.5—3 mm. long, 4—6.5 mm. wide, densely puberulent, its rim at first suntruncate and entire, eventually splitting into 5 rounded lobes 1.5—2 mm. long; fruit purplish-black or black, oblong or subglobose, about 8 mm. long, 7—8 mm. wide, fleshy, 2-lobed, glabrate; seeds 2, obovate, convex externally, concave internally, 2-celled.

The type of this species was apparently collected from cultivated material growing in the botanical garden at Madrid, Spain, grown there from seed sent by Hipólito Ruíz from Huanuco, Quivilla, and Huariaca, in the department of Huanuco, Peru. C. spinosum was based on a collection made by Friedrich Heinrich Alexander von Humboldt and Aimé Jacques Alexandre Bon-

pland (No. 3687) on the Paramo of Yanaguanga, at an altitude of 1500 hex., and another made in the valley of Cajamarca, Peru. The type of Rauwolfia macrophylla was collected by Juan Tafalla on sandy hills near Arequipa, Peru. The type of Citharexylon megacanthum was collected by Robert Statham Williams (no. 2544) on the hills in back of Mollendo, Arequipa, Peru, at an altitude of 2000 feet, on August 5, 1901, and is deposited in the Britton Herbarium at the New York Botanical Garden.

The exceptionally large and stout spines of this species render its identification easy. It is most unfortunate that the two very appropriate specific epithets, "spinosum" and "megacanthum", are invalid, and that such a singularly inappropriate one as "flexuosum" should be the valid one, while "spinosum" is applied to a non-spiny species! In some specimens the internodes on the abbreviated secondary-axillary branchlets are so short that the leaf-sterigmata overlap each other closely! The mature leaves almost invariably have the midrib, secondaries, and veinlet reticulation impressed above, while immature leaves have them plane above. Macbride describes the flowers as being very fragrant. The species ascends from 800 to 2850 meters altitude and is said to inhabit rocky places, hillsides and steep stony hillsides, gravelly soil, dry gravelly slopes, heavy loam soil, steep rock slides, very steep quebradas, and the banks of rivers. It has been collected in anthesis from July through October, and in fruit in April and May. It has been confused by Raimondi with the genera Randia Houst. and Duranta L., and by Kummer with "Cinchona jacquini", "Plectronia detonsa", and Citharexylum molle H.B.K. I. M. Johnston confused it with Duranta triacantha A. L. Juss., and Standley with D. armata Moldenke. It has also been confused in herbaria with Citharexylum pentandrum Vent. and "Citharexilon cinereum L." [=Citharexylum fruticosum L.]

A specimen in the Kew herbarium, apparently representing the same plant or a plant from the same lot of seeds as that described and figured by Jacquin in Hort. Schönbr. 4: 51, pl. 500 (1804), has been examined by me. It is a perfect match for the illustration of Jacquin and certainly represents this species. Jacquin states that the plant grew from seeds collected on the Champion River in Patagonia (a river not as yet located by me on any atlas of the area). The specimen in question was grown in the Jardin des Plantes, Orangerie, under the name of "Duranta spinosa", and was collected on June 26, 1819. If the seeds of this plant actually came from Patagonia, it would indicate a most remarkable extension of the range of the species. Examination of the type and several isotypes of the Humboldt, Bonpland, and Kunth plant leaves no doubt whatever that it is identical with the Ruíz and Pavon plant. In all, 65 herbarium specimens, including the types of all the names involved, and 23 mounted photographs have been examined.

Vernacular names for the species are "chama", "choloquillo simarrón", "spino de cruzes", and "turucasa" — the last-men-

tioned name signifying blunt spines. Walpers and Schauer, in the references cited above, both incorrectly cite the D. Don binomial to page "273" instead of "237" of the New Philosophical Journal. The formal labels accompanying the Macbride photograph of an isotype of C. spinosum H.B.K. read "Citharexylum speciosum" in error. In the Bol. Mus. Hist. Nat. Jav. Prado reference given above Raimondi cites his no. 12031 from Lima as this species. I have not seen any material of this number, but have seen no. 12037, from Ancash. Possibly a typographic error is involved here.

The so-called variety subglabrum Moldenke, proposed by me in Fedde, Repert. 37: 222--223 (1934), proves to belong to the solanaceous genus Lycium and is now known as Lycium subglabrum (Moldenke) Moldenke.

Citations: PERU: Ancash: Raimondi 12037 (B). Arequipa: D. Stafford 822 (K); Weberbauer 1450 (B); R. S. Williams 2544 (B--photo, Bm, K, K--photo, N, N--photo, S--photo, Z--photo); Worth & Morrison 15700 (Ca--656626). Cajamarca: Humboldt & Bonpland 3687 [Macbride photos 17601] (B, B, E--photo, F--976582, F--photo, Kr--photo, N--photo, N--photo, N--photo, P, P, P, S--photo, W--photo, Z--photo, Z--photo); Raimondi 3206 (B), 3951 (B), 7537 (B). Huanuco: Macbride & Featherstone 2279 (F--518762, W--1123158), 2409 (F--518844, N--photo, S, W--1123165, Z--photo), 2438 (F--518872, K, N, N, S, W--1123166), 3173 (F--534243); A. Mathews 825 (Ed, K); Ruíz s.n. [Rauwolfia emarginata] (B, Bm); Ruíz & Pavon 88 [7/78; Macbride photos 29685] (F--918369, Kr--photo, N--photo, Q), 841 [8/41] (F--842506, F--845360); Stork & Horton 9398 (Ca--647462); United States Expl. Exped. [Wilkes] s.n. [Baños] (W--57341). Lima: Macbride & Featherstone 464 (F--516998, W--1123118); Nuñez 3151 (W--2120751); Raimondi 12014 (B); Weberbauer 98 (B). CULTIVATED: Austria: Hort. Schönbr. s.n. [Patagonia] (V, V). France: Collector undesignated s.n. (Dc, Dc, Dc, Dc); Gouan s.n. (K); Herb. Harvey s.n. [jardin du Montpellier] (Du--166406); Hort. Audibert s.n. (K); Hort. Bot. Monspel. s.n. [1816] (L); Jard. Pl. Oranger. s.n. [26 Juin 1819] (K); Reynier s.n. [1826] (Dc). Germany: Herb. Kummer s.n. [Hort. Bot. Monac., 1832] (Mu--1380), s.n. [Hort. Bot. Monac., 1840] (Mu--1381); Herb. Zuccarini s.n. [Hort. Bot. Monac., 1834] (Mu--1384); Hort. Berol. s.n. [April, 1846] (B). Italy: Jard. de Florence s.n. (Cb). Madagascar: Goudot s.n. [Madag.] (P). Netherlands: Herb. Persoon s.n. (Le). Spain: Pavon s.n. (K--isotype); Ruíz s.n. [Rauwolfia flexuosa] (B--isotype, Bm--isotype, K--photo of isotype, N--photo of isotype, S--photo of isotype, Z--photo of isotype).

CITHAREXYLUM FORSITHIAEFOLIUM Massalongo, Syllabus Plant. Foss. 72, nom. nud. [as "Citharexylon forsithiaefolius"]. 1859;

Moldenke, Geogr. Distrib. Avicenn. 41, nom. nud. 1939.

Synonymy: Citharexylon forsithiaefolium Massalongo ex Moldenke, Prelim. Alph. List Invalid Names 15, in syn. 1939.

Literature: Massalongo, Syllabus Plant. Foss. 72. 1859; Moldenke, Geogr. Distrib. Avicenn. 41. 1939; Moldenke, Prelim. Alph. List Invalid Names 15. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 75 & 88. 1942; Moldenke, Alph. List Invalid Names 13. 1942; H. N. & A. L. Moldenke, Plant Life 2: 42. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 166 & 179. 1949.

Nothing is known of this fossil species except that it is based on a specimen from the Chiavon formation at Venice, Italy, of Oligocene age. No formal description or illustration seen to have ever been published.

CITHAREXYLUM FRUTICOSUM L., Syst. Nat., ed. 10, 2: 1115 [as "fruticos."]. 1759; Sandm., Fl. Jamaic. 18, nom. nud. [as Citharexylon fruticosum]. 1759; O. E. Schulz in Urb., Symb. Ant. 6: 61. 1909.

Synonymy: Citharexylon arbor americana, foliorum venis late candicantibus Pluk., Phytogr. 3: pl. 162, fig. 1. 1692. Citharexylum arbor laurifolia, americana, foliorum venis late candicantibus Pluk., Almag. Bot. 108. 1696. Citharexylon fruticosum, cortice cinereo, foliis oblongo-ovatis oppositis, petiolis marginatis pedatis, floribus spicatis, fructu majori P. Browne, Civil & Nat. Hist. Jamaic., ed. 1, 264. 1756. Citharexylon cinereum L., Sp. Pl., ed. 2, 2: 872. 1763 [not C. cinereum Spreng., 1851]. Citharexylum cinereum L., Syst. Nat., ed. 12, 416. 1767. Cytharexylum cinereum L. ex Jacq., Amer. Gew. 2: 44. 1787. Citharexylum coriaceum Desf., Tabl. Ecol. Bot., ed. 2, 65, nom. nud. (1815), Cat. Pl. Hort. Reg. Paris, ed. 3, 91 & 392. 1829. Citharexylon coriaceum Desf. ex Steud., Nom. Bot., ed. 1, 202. 1821. Citharexylum fruticosum, cortice cinereo etc. P. Browne apud Walp., Repert. 4: 75, in syn. 1845. Citharexylon arbor laurifolia Pluk. apud Walp., Repert. 4: 75, in syn. 1845. Citharexylum cinereum Sessé & Moc. ex D. Don, Edinb. New Philos. Journ. 11 [Jan.--Mar.]: 238, in syn. (1831); Sessé & Moc., Fl. Mex., ed. 1, 152. 1894. Citharexylum caudatum Sagra apud O. E. Schulz in Urb., Symb. Ant. 6: 61, in syn. 1909 [not C. caudatum L., 1763]. Citharexylum quadrangulare Griseb., in part, apud O. E. Schulz in Urb., Symb. Ant. 6: 62, in syn. 1909 [not C. quadrangulare L., 1786, nor Schau., 1864, nor Sessé & Moc., 1894, nor Millsp., 1907, nor Boutelou, 1909, nor Jacq., 1909, nor A. Rich., 1909, nor Hort., 1911, nor Hort. Madrit., 1806, nor Citharexylon quadrangulare Jacq., 1760]. Citharexylum villosum Griseb. apud O. E. Schulz in Urb., Symb. Ant. 6: 62, in syn. 1909 [not C. villosum Jacq., 1781]. Citharexylum villosum Chapm. apud Small, Fl. Miami 161, in syn.

1913. Citharexylon fruticosum L. apud Sudw., Check List For. Trees U. S. 231. 1927. Citharexylum spicatum Ryan ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940 [not C. spicatum (Jacques) Sprague, 1924, nor Citharexylon spicatum Rusby, 1900]. Citharexylum villosum var. glaberrimum C. Wright ex Moldenke, Prelim. Alph. List Invalid Names 18, in syn. 1940. Cytharexilum cinereum Sessé & Moc. ex Moldenke, Prelim. Alph. List Invalid Names 24, in syn. 1940. Atharexylum cinereum L. ex Moldenke, Suppl. List Invalid Names 1, in syn. 1941. Citarexylum fruticosum L. apud Alain in León & Alain, Fl. Cuba 4: 299 & 300, sphalm. 1957. Citarexylum fruticosum var. fruticosum [Alain] in León & Alain, Fl. Cuba 4: 300. 1957. Citarexylum cinereum L. apud Alain in León & Alain, Fl. Cuba 4: 300, in syn. 1957. Atharexylon cinereum L., in herb.

Literature: Pluk., Phytogr. 3: pl. 162, fig. 1. 1692; Pluk., Almag. Bot. 108. 1696; L., Amoen. Acad. 1: 406. 1749; P. Browne, Civil & Nat. Hist. Jamaic., ed. 1, 264. 1756; Plum., Pl. Amer., ed. Burm., pl. 157, fig. 2. 1758; L., Syst. Nat., ed. 10, 2: 1115. 1759; Jacq., Enum. Syst. Pl. Carib. 26. 1760; L., Syst. Nat., ed. 11, 2: 1115. 1760; L., Amoen. Acad. 5: 380. 1760; L., Sp. Pl., ed. 2, 2: 872. 1763; L., Sp. Pl., ed. 3, 2: 872. 1764; L., Syst. Nat., ed. 12, 416. 1767; L., Syst. Nat., ed. 13, 416. 1770; Murr. in L., Syst. Veg., ed. 13, 472. 1774; Jacq., Select. Stirp. Amer. Hist. Pict. 90—91, fig. 178. 1780; Murr. in L., Syst. Veg., ed. 14, 564. 1784; Jacq., Amer. Gew. 2: 44, pl. 197. 1787; Gmel., Syst. Nat. 2 (2): 942. 1788; Jacq., Ic. Pl. Rar. 3: pl. 501. 1793; Gmel. in L., Syst. Nat., ed. 13, 2 (2): 942. 1796; Desf., Tabl. Ecol. Bot., ed. 1, 54. 1804; Desf., Tabl. Ecol. Bot., ed. 2, 65. 1815; Poir. in Lam., Dict. Sci. Nat. 9: 284—285. 1817; Cels, Cat. Arbres 11. 1817; Steud., Nom. Bot., ed. 1, 202. 1821; Mordant de Launay, Herb. Amat. 7: pl. 493. 1824; Desf., Cat. Pl. Hort. Reg. Paris, ed. 3, 91 & 392. 1829; Drapiez, Herb. Amat. Fl. 4: pl. 269. 1830; Richter, Linn. Op. 603. 1835; Richter, Cod. Linn. 603. 1840; Steud., Nom. Bot., ed. 2, 375. 1840; Walp., Repert. 4: 75. 1845; Schau. in A. DC., Prodr. 11: 611 & 613. 1847; Schau. in Mart., Fl. Bras. 9: 267. 1851; Griseb., Abhand. König. Gesell. Wissen. Götting. 7: 256. 1857; Ettingsh., Blatt-Skel. Dikot. 78, fig. 42. 1861; Griseb., Fl. Brit. W. Ind. 497. 1861; Fawcett, Prov. List Indig. Nat. Fl. Pl. Jamaic. 29. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 159. 1894; Sessé & Moc., Fl. Mex., ed. 1, 152 (1894), ed. 2, 166. 1895; Lubbock, Journ. Linn. Soc. Lond. Bot. 33: 231. 1897; Børgesen, Bot. Tidsskr. 22: 79. 1898; Boergesen & Paulsen, Rev. Gén. Bot. 12: 443. 1900; Contrib. U. S. Nat. Herb. 8: pl. 27. 1903; Pulle, Enum. Pl. Surin. 403. 1906; Avebury, Buds & Stipules 76. 1908; Britton, N. Am. Trees 825. 1908; O. E. Schulz in Urb., Symb. Ant. 6: 61—62. 1909; Small, Fl. Miami 161. 1913; Small, Fl. Fla. Keys 130. 1913; Ann. Rep. Smithson. Inst. 1917: 383. 1918; Britton & Millsp., Bahama Fl. 371—372. 1920; Sarg., Man. Trees N. Amer., ed. 2, 865. 1922; Britton & P. Wils., Scient.

Surv. Porto Rico 6: 145—146. 1925; León in Shelford, Naturalists Guide Amer. 687. 1926; Sudw., Check List For. Trees U. S. 231. 1927; Roig, Est. Exp. Agron. Santiago Vegas Bol. 54: 340, 558, & 793. 1928; Seymour, Host Ind. Fungi N. Am. 588—589. 1929; Stapf, Ind. Lond. 2: 220. 1930; Small, Addisonia 15: pl. 496. 1930; Trop. Woods 27: 27. 1931; Grey & Hubbard, List Pl. Atkins Instit. 56. 1933; Small, Man, Southeast. Fl. 1142. 1933; J. A. Harris, Physico-chem. Prop. Plant Saps 143. 1934; Wolcott & Otero, Journ. Agr. Univ. Puerto Rico 20: 99, 103, 104, 128, 143, 463, 467, 499, & 607. 1936; Apolinar María, Revist. Acad. Colomb. 1: 358. 1937; Moldenke, Annot. List 108. 1939; Moldenke, Lilloa 4: 310—311. 1939; Moldenke, Alph. List Common Names 2, 4—8, 10, 12—14, 20, 23—27, & 33. 1939; Moldenke, Geogr. Distrib. Avicenn. 3—12, 20, 21, & 36. 1939; Moldenke, Suppl. List Common Names 7, 9, 13, 16—18, & 21. 1940; Moldenke, Prelim. Alph. List Invalid Names 15—18 & 24. 1940; Moldenke, Suppl. List Invalid Names 1. 1941; Worsdell, Ind. Lond. Suppl. 1: 233. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 4, 24—30, 32, 33, 71, & 88. 1942; Moldenke, Alph. List Invalid Names 4, 13—15, & 23. 1942; J. H. Davis, Fla. Geol. Surv. Bull. 25: 173. 1943; Moldenke, Phytologia 2: 96. 1944; Moldenke, Am. Midl. Nat. 32: 575. 1944; Buswell, Native Trees & Palms 44. 1945; Little, Am. Midl. Nat. 33: 512. 1945; Moldenke, Castanea 10: 37. 1945; Alain, Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle 7: 79 & 113. 1946; Augusto, Fl. Rio Grande do Sul 229 & 236. 1946; Menninger, 1947 Cat. Flow. Trees 37. 1946; E. S. & J. G. Harrar, Guide South. Trees 648—649, pl. 192. 1946; Gregory & Vélez, Caribb. Forester 7: 16, 20, 22, & 33. 1946; Moldenke, Alph. List Cit. 1: 2, 22, 23, 33, 37, 50, 55, 61—70, 74, 75, 80, 98, 99, 113, 115, 129, 138, 139, 155, 162, 176, 180, 181, 185, 187, 189, 196, 197, 201, 208, 211, 216, 221, 241, 247, 250, 258—260, 269—272, 280—282, 292, 295, 298, 301, 302, 304—307, 309—314, 320, & 321. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 5. 1947; Moldenke, Alph. List Cit. 2: 332, 333, 335, 339, 345, 356, 393—395, 403, 408, 409, 420, 422-429, 433, 435—437, 443, 446, 447, 459, 465, 468, 475, 481, 487, 490, 496, 499, 502, 509, 511, 512, 518, 521, 528, 535, 543, 544, 549, 564—566, 570, 577, 578, 579, 593, 609, 621, 625, 646, & 648 (1949), 3: 653, 654, 675, 706, 713, 718, 728, 742, 755, 756, 758—760, 771, 774—776, 778, 782, 795, 801, 822, 824, 825, 828, 842, 847, 852—854, 856, 858, 866, 868, 871, 880, 887—889, 891, 892, 894, 897, 916, 917, 926, 928—930, 937—939, 941, 944, 949, 958, & 969—971 (1949), and 4: 983, 986, 995, 1012, 1016—1020, 1022—1027, 1033—1035, 1037, 1039—1042, 1045, 1047, 1050, 1054, 1057, 1062, 1063, 1065, 1066, 1068, 1103, 1117, 1136, 1137, 1139, 1145, 1192, 1206, 1208, 1220, 1296, & 1303. 1949; W. L. Phillips, Cat. Fairchild Trop. Gard. 16. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 9, 42, 43, 46, 47, 49—57, 62, 67, 157, & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949; Menninger, Winter 1950 Seed List n.p. 1950; Moldenke, Phytologia 3: 451. 1951; Roig, Dicc. Bot. 1: 441—442, 476—477, 636, 759, 824, 826—828, & 850 and 2: 1003. 1953; Moldenke, Journ. Calif. Hort. Soc. 15: 80. 1954; Moldenke

in Cheesman, Fl. Trin. & Tob. 2 (6): 19—23. 1955; Alain in León & Alain, Fl. Cuba 4: 299—300, fig. 129. 1957.

Illustrations: Pluk., Phytogr. pl. 162, fig. 1. 1692; Plum., Pl. Amer., ed. Burm., pl. 157, fig. 2 [as C. caudatum]. 1758; Jacq., Select. Stirp. Amer. Hist. Pict. 90—91, pl. 178 (colored). 1780; Jacq., Ic. Pl. Rar. 3: pl. 501 [as C. erectum]. 1793; Mordant de Launay, Herb. Amat. 7: pl. 493 (colored). 1824; Drapiez, Herb. Amat. Fl. 4: pl. 269 (colored). 1830; Ettingsh., Blatt-Skel. Dikot. 78, fig. 42. 1861; Lubbock, Journ. Linn. Soc. Lond. Bot. 33: 231 [as C. quadrangulare]. 1897; Børgesen, Bot. Tidsskr. 22: 79, fig. 28 (8). 1898; Rev. Gén. Bot. 12: 443. 1900; Contrib. U. S. Nat. Herb. 8: pl. 27 [as C. quadrangulare]. 1903; Avebury, Buds and Stipules 76 [as C. quadrangulare]. 1908; Britton, N. Am. Trees 825. 1908; Ann. Rep. Smithson. Instit. 1917: 383. 1918; Sarg., Man. Trees N. Amer., ed. 2, 865. 1922; Small, Addisonia 15: pl. 496 (colored). 1930; Small, Man. Southeast. Fl. 1142. 1933; E. S. & J. C. Harrar, Guide South. Trees pl. 192. 1946; Alain in León & Alain, Fl. Cuba 4: fig. 129. 1957.

Shrub or graceful, slender, semi-deciduous, small, or medium sized tree, to 16 m. tall; trunk to 21 cm. in diameter at breast height; branches medium-stout, gray, obtusely or more or less acutely tetragonal, glabrous; bark on old trees pale-brown or gray, smooth or with very shallow furrows, on young trees light-brown; branchlets more slender, acutely tetragonal, often ribbed; twigs and young shoots light-brown, acutely tetragonal, medullose, glabrous, often ribbed; nodes annulate; principal internodes 0.7—5.8 cm. long; leaf-scars borne on stout ascending sterigmata, which on larger branches become very corky and to 5 mm. long and 4 mm. wide; leaves decussate-opposite; petioles slender or stoutish, orange when fresh, 1—2.5 cm. long, more or less margined, canaliculate above, glabrous; leaf-blades very firmly chartaceous, bright- or yellow-green on both surfaces or somewhat darker above, very shiny and glossy (especially above), oblong or elliptic (occasionally sublanceolate, oblanceolate, or obovate), 4.5—21 cm. long, 1.5—8 cm. wide, varying from acute or very shortly acuminate to obtuse or rounded at the apex (rarely emarginate), entire (or coarsely serrate on seedlings), cuneate or narrow-cuneate at the base, with 1—3 pairs of glands at the very base, one pair of which is always much elongated and parallel to the petiole, reticulate, very glabrous on both surfaces or very rarely punctate beneath and obsoletely puberulent along the venation when immature, the younger ones appearing as though varnished; midrib rather stout and broad, pale, sharply prominulous above, prominent beneath; secondaries slender, 5—8 pairs, arcuate-ascending, usually hardly at all or very obscurely anastomosing, sharply prominulous on both surfaces; vein and veinlet reticulation fine, abundant, sharply prominulous on both surfaces, especially above; racemes axillary and terminal, mostly terminal, 3.5—26.5 cm. long, 1—1.7 cm. wide, the axillary ones usually abbreviated, the terminal ones sometimes branched with 1

or 2 short branches near the base, mostly lax, nutant or pendent, many-flowered, often dense; peduncles slender, brown, 0.5 to 1.5 cm. long, glabrous; rachis slender, brown, glabrous; pedicels filiform, to 1 mm. long or obsolete, glabrate; bracts and bractlets apparently none or occasionally 1 pair of linear bractlets to 3 mm. long and sparsely pubescent; prophylla linear or setaceous, 1—2 mm. long; flowers fragrant; calyx cyathiform, 2.5—4 mm. long, glabrous, its rim truncate or very lightly 5-repand-dentate and ciliate; corolla white or greenish white, subhypocrateriform, its tube 2—6 mm. long, glabrous externally, villous within (especially at the mouth), its limb 5-parted, about 5 mm. wide, the lobes suborbicular or elliptic-lingulate, 2—3 mm. long, rounded at the apex; fruiting-calyx indurated, shallowly cupuliform, 2—3 mm. long, 5—6 mm. wide, glabrous, its rim shallowly and more or less irregularly scarious-lobed; fruit oblong or subglobose, fleshy, to 13 mm. long and 12 mm. wide, apiculate by the persistent style when immature, much wrinkled in drying, dull or subnitid, 2-lobed, varying from pink or red to orange, orange-red, or scarlet when immature, purplish or black when ripe; seeds 2, thin, saucer-shaped.

The type of this very common species was collected by James Reed in the Barbados and is deposited in the Sloane Herbarium. The species inhabits roadsides, hammocks, oak hammocks, sand ridges and dunes bordering the sea, thickets, pastures, arroyos, dry thickets and woodlands, rocky shores, arid plains, forests and areas of second-growth, coastal thickets, hills and open hillsides, the borders of mangrove swamps, streamsides, riverbanks, dry copses, rocky woods, pinelands, limestone soil, limestone cliffs, coastal scrub, litoral situations, and sea islands. It ascends from sea-level to 500 meters altitude. In Florida it inhabits both the everglade keys and the Florida keys. In the West Indies it is said to be found on even the smallest sea islets. The Leonards report that it is at times scandent. Many observers report that the fruit is at first red and then turns black as it matures. Longitudinal and transverse sections of the wood may be seen on Leonard & Leonard 11308 in the United States National Herbarium, while the Nash 30 specimen at Chicago has sections of the bark. The O'Neill s.n. from Miami, collected on July 22, 1929, is accompanied by a photograph.

The branches and branchlets of this species, although light in color, are not as distinctly white as are those of C. albicaule Turcz. Its prominulous, dense, and conspicuous leaf-venation distinguishes it at once from C. caudatum L., with which it has in the past been abundantly confused by writers and herbarium workers. C. caudatum also has much longer racemes and more shiny fruit. Our species is much more easily confused with C. spinosum L., and, indeed, some specimens are distinguished with great difficulty. Poiret distinguishes the two species by noting that C. spinosum (which he calls C. quadrangulare) "differe peu du precedent. Ses feuilles sont ovales-

acuminées, tres-entières; les épis pendens; les calices tronqués.....C'est le Citharexylum caudatum, de Swartz. Prodr." Schulz says that in C. fruticosum the pedicels are only 0.5--0.75 mm. long during anthesis, while in C. spinosum they are 1 to 1.5 mm. long during anthesis. In my experience, the character which is most dependable is that of the vein and veinlet reticulation. In C. fruticosum it is very conspicuous and prominent on both leaf-surfaces and the blades are mostly quite thick and firm; in C. spinosum it is usually plainly visible, but only very slightly if at all prominulous on both surfaces and the blades are often very thin and fragile. C. fruticosum may in general be distinguished from its close relatives by the following combination of characters: the calyx-rim is irregularly lobed, the pedicels are short, and the leaf-blades are firm and prominently veined.

Other species with which C. fruticosum has been confused in herbaria are C. villosum Jacq. [=C. fruticosum var. villosum (Jacq.) O. E. Schulz], C. tristachyum Turcz., C. lucidum Schlecht. & Cham., C. quadrangulare Jacq. [=C. spinosum], C. bahamense Millsp. [=C. fruticosum var. villosum], C. subserratum Sw. [=C. fruticosum var. subserratum (Sw.) Moldenke], C. erectum Sw. [=C. caudatum], and C. reticulatum H.B.K. It has also been misidentified as "Coccoloba sp.", Coccoloba diversifolia Jacq., and Borbonia Plum. M. Laurent, on the label of his collection no. 1283, gives the name C. fruticosum as a synonym of Duranta plumieri Jacq.!

Menninger refers to the inflorescences as being "spikes" and to the flowers as "tubular", but neither statement is correct. He says that the fruit is "black-and-red", but probably means that there are some red and some black fruits in the same raceme. He recommends the tree for exposed situations and states that it adapts itself to dry soils. The flowers usually blacken in drying. Britton reports the bark as shredding. Abbott states that the plant has medicinal properties. The Howards report that in the Dominican Republic it is used for living fenceposts, while Beard says that on Jost Van Dyke Island it is used for charcoal. The Howards describe it as a 7--10-foot tall "bush". Allard says it is "like Prunus serotina" in habit.

Mostly it is only a tall shrub, but when it grows into a tree it is quite slender. The very old leaves from older branches are often subcoriaceous. Broadway reports that the bark of the trunk is gray in color and falls off in shields, and that the fruit is soft, juicy, and 2-seeded. The Smiths state that "the lower blades in small plants are obscurely dentate. Petioles at base red. Flowers to some extent through the year." Britton & Cowell 1968 is such a seedling specimen and exhibits the coarsely serrate leaves not seen on ordinary specimens. Hioram 3956 is anomalous in its extremely narrow leaf-blades, which are 2.7--6.9 cm. long and 7--12 mm. wide. It approaches var. smallii Moldenke in this respect. Rehder 894 is somewhat

anomalous in that the vein and veinlet reticulation is hardly at all prominulous above. Very immature leaves of this collection are membranous and have the venation plane throughout. It greatly resembles xC. hybridum Moldenke. The unnumbered Garber specimen, collected at Miami, Feb.—July 1877, deposited in the University of Vermont herbarium, has some hairs along the midrib.

The species has been collected in anthesis from July through February and in April and May, and doubtless blooms all through the year, as stated by the Smiths. It has been collected in fruit in every month of the year. The physico-chemical properties of the sap in relation to phytogeography are discussed by J. A. Harris in the reference cited above. Specimens which he used in his experiments were from Sykes Hammock, Brickell Hammock, Hattie Bauer Hammock, from along the shores and on scrub-covered sand dunes on the mainland side of Hobe Sound, a few miles north of Jupiter Inlet, and in Royal Palm Hammock, Florida.

Common names recorded for the species include "agracejo", "aschgrauer Geigenholzbaum", "balsamo", "balsamo", "black fiddlewood", "bois de guitard", "bois de guitare", "bois guitarin", "canilla de venado", "canilla de vendado", "catcycillo", "cateycillo", "citharexylum cendré", "cutlet", "fairytree", "falo blanco", "fiddlewood", "fiddle-wood", "fiddlewood-tree", "Florida fiddlewood", "gallito", "grenad marron", "guairo sando de costa", "guairo santo", "guayo", "guayo blanco", "guayo roble", "higuerillo", "long Tom", "mangle de sabana", "old woman's bitter", "old-woman's bitter", "palo de guitarra", "palo guitana", "palo guitarra", "penda", "penda blanca", "pender", "péndola", "pendu", "pendula", "pendúla", "péndula", "péndulo colorado", "pfndula" [error for "pendula"], "pindoula", "pindula", "racemose fiddlewood", "roble amarillo", "roble blanco", "roble de olor", "roble dulce", "roble guayo", "sangre de doncella", "savanna-wattle", "spicate fiddlewood", "susanna tree", and "white fiddlewood". Many of these names, however, are also applied to other species, sometimes quite unrelated to this one. For instance, "agracejo" is applied also to C. dawei Moldenke and to C. tristachyum Turcz.; "black fiddlewood" to Vitex divaricata Sw.; "bois de guitare", "bois guitarin", and "susanna tree" to C. spinosum; "cateycillo" and "gallito" to C. fruticosum var. subvillosum Moldenke; "cutlet" to C. fruticosum var. brittonii Moldenke, C. fruticosum var. villosum, and C. spinosum; "fiddlewood" to C. fruticosum var. brittonii, C. fruticosum var. villosum, C. spinosum, Cornutia pyramidata L., Petitia domingensis Jacq., Vitex gaumeri Greenm., and V. umbrosa Sw.; "fiddlewood" and "guairo sando de costa" to C. caudatum; "guairo santo" to C. caudatum and Aegiphila elata Sw.; "guayo" to C. discolor Turcz., Petitia domingensis, Sloanea curatellifolia Griseb. (Elaeocarpaceae), and Terminalia chicharronia Wright (Terminaliaceae); "guayo blanco" to C. spinosum, C.

tristachyum, and Banara roigii P. Wils. (Flacourtiaceae); "guayo roble" to C. tristachyum; "higuerillo" to C. caudatum and Vitex divaricata; "penda" to C. caudatum, C. fruticosum var. subvillosum, C. fruticosum var. villosum, C. spinosum, Cornutia pyramidata, and Chimarrys cymosa Jacq. (Rubiaceae); "roble guayo" to C. tristachyum, Clerodendrum lindenianum A. Rich., Petitia domingensis, Vitex divaricata var. cubensis Urb., and Terminalia chicharronia; "white fiddlewood" to C. caudatum, C. fruticosum var. brittonii, C. fruticosum var. villosum, Vitex capitata Vahl, and V. compressa Turcz.; "roble blanco" to C. caudatum and Tabebuia angustata Britton (Bignoniaceae); and "roble de olor" to Catalpa macrocarpa (A. Rich.) Ekm. (Bignoniaceae), Bourreria succulenta Jacq. (Ehretiaceae), Tabebuia leptopoda Urb. (Bignoniaceae), Petitia domingensis, Vitex divaricata, Ehretia tinifolia L. (Ehretiaceae), and Sebesten sp. (Ehretiaceae).

The type of Sessé and Mociño's Citharexylum cinereum, which was their no. 2370 in Standley's recent numbering, was collected in Puerto Rico. The name "pfendula" recorded by Britton & Wilson in Scient. Surv. Porto Rico 6: 146 (1925) is surely a typographic error for "pendula". The Citharexylon cinereum L. cited by Augusto in his Flora Rio Grande do Sul 236 (1946), based on an Emrich collection and which he says is this species or some species related to this one not mentioned in Martius' Flora Brasiliensis, is certainly not C. fruticosum. It may possibly be C. rigidum (Briq.) Moldenke. Augusto lists Citharexylon teres Jacq. as a synonym of Citharexylon cinereum L. (as do also Steudel and Schauer in the references cited above), but Jacquin's binomial belongs in the synonymy of C. spinosum instead. There is a "Jacq., Ic. Pl. Rar., ed. 1, 4, pl. 82. 1781" sometimes cited to C. fruticosum (for instance, by O. E. Schulz in Urb., Symb. Ant. 6: 63. 1909), but I am unable to trace this edition. Plate 82 in the 1781--1796 work, the only edition known in the library of the New York Botanical Garden, is a Dianthus species (Caryophyllaceae).

In the Linnean Herbarium in London, sheet 2 under genus 777 is labeled "Citharexylon cinereum", but is actually Schlegelia violacea (Aubl.) Griseb. (Bignoniaceae). I examined this specimen in London in 1935 and photographs of it are in my own and in the Britton Herbarium at the New York Botanical Garden. The "Citharexylum cinereum L." illustrated by H. Apolinar Maria in his Vocab. Term. Vulg. Hist. Nat. Colomb. in Revista Acad. Colomb. 1: 358 (1937) is actually C. karsteni var. lanceolatum Moldenke, and the vernacular names "agracejo" and "palo blanco" which he records for it therefore apply to that variety and not to this species. The wood of C. fruticosum is said to be used commercially in Cuba.

The Cornell sheet of Pollard, Palmer, & Palmer 28 has a few hairs in the vein axils on the lower leaf-surface, but not e-

nough to place it definitely in var. subvillosum.

C. fruticosum is reported to be the host for numerous insects by Wolcott & Otero in the reference cited above: Pyrausta cerata Felt, Calpoptera maculata Doxier, Ormenis quadripunctata Felt, Flatoides punctata Walker, Pulvinaria psidii Marshall, Ischnaspis longirostris Signoret, Agathodes designalis Guenee, and Acrocercops inconspicua Forbes. It is also attacked by the fungus Irene longipoda (Gaill.) Toro.

O'Neill reports on the label of his no. 7122 that he found an average of 392 trees of this species per acre where counts were made. Sudworth states that the species grows in Florida from Cape Canaveral to the southernmost Florida keys and is everywhere known as "fiddlewood". The Broadway 4064 and 6658, widely distributed as this species, appear to represent a natural hybrid with C. spinosum and are herein cited under xC. hybridum Moldenke.

In all, 701 herbarium specimens, including the types of most of the names involved, and 7 mounted photographs have been examined.

Don in Edinb. New Philos. Journ. 11 (Jan.--Mar.): 238 (1831) places C. cinereum Sessé & Moc. in the synonymy of his C. lucidum [=C. ellipticum Sessé & Moc.]. However, the type of this binomial is from Puerto Rico, and so cannot belong to this Mexican species. It is obviously C. fruticosum.

Citations: FLORIDA: Brevard Co.: Burgess 765 (F--157225, N); Curtiss 1969 (A, B, B, Bm, C, Cm, E--119118, E--874252, F--148303, G, Gg--163164, K, L, Mi, Mu--1607, Pa, T, Up, Vt, Vu, W--41194, X), 5722 (Al, Ca--104987, Cb, Cb, E--119115, E--887470, Ed, Ed, Fl--20949, G, Io--38744, It, K, Ka, L, N, P, Po--64357, Ur, Vt, Vu, W--280800, X); Degener s.n. [Tropic, Aug. 15, 1933] (Ba, Ur, Ur); O'Neill 7120 (I); Rhoads s.n. [Orchid, Feb. 23, 1937] (Fl--25822). Dade Co.: Bailey & Bailey 6429 (Ba); Bessey 26 (A); N. L. Britton s.n. [Jan. 21, 1905] (N); Buswell s.n. [May 16, 1934] (Bu); Chapman 89 (D, E--119114), s.n. (W--968542); Cowles S.20-20, in part (Bt--31744, Cb, W--1584824), s.n. [Miami, '06] (Ur); Curtiss s.n. [Miami, July 17] (W--1583190); A. A. Eaton 304 (F--166678, F--230876), 757 (F--231002, Oa); A. P. Garber s.n. [Miami, Feb.--July 1877] (Vt), s.n. [Miami, July 1877] (Pa), s.n. [Miami] (D, G, W--57462); J. A. Harris C.17377 (A), C.191051, in part (W--1435851); Harshberger s.n. [August 15, 1911] (Up--63206), s.n. [Dec. 1911] (Up); Howell 886 (W--893575); C. D. Mell s.n. [Miami, Jan. 1907] (W--1584899); H. N. Moldenke 3583 (N, Z), 5627 (Z), 5637 (N, Z); Mulvania 26 (Hp); O'Neill 7121 (I), 7122 (I), 7123 (I, I, I), 7124 (I, I), s.n. [Brickell Hammock, July 22, 1929] (W--1488531), s.n. [Miami, July 22, 1929] (Fl--20948), s.n. [Sykes Hammock, Sept. 6, 1929] (Fl--20947, W--1488515); Ostenfeld 175 (Cp); Rehder 763 (A), 817 (A, B, K), 860 (A), 894

(A, A, B, K); Safford 293 (W—1036129, W—1036130, W—1036131); Safford & Mosier 73 (W—1035908); Sargent s.n. [Hunting ground] (A); C. Skottsberg s.n. [Miami, 18/5/1935] (Go); J. K. Small 3861 (N); Small & Nash 30 (Ar—7505, N, N); Small & Small 4719 (Fl—27762); Tidestrom 6956 (Ar—7504, Ar—10131, S, W—693910). Indian River Co.: Rhoads s.n. [Roseland, 12 Jan. 1937] (Fl—25543). Martin Co.: J. A. Harris C.191051, in part [Hobe Sound] (H—10279). Monroe Co.: Killip 31698 (N); E. Scull s.n. [Long Pine Key, 8/25/37] (Bt—45940), s.n. [Long Pine Key, 6/15/38] (H—50708). Palm Beach Co.: A. S. Hitchcock 1487 (F—233564), s.n. [Palm Beach] (F—233563); O'Neill 824. BAHAMAS: Brace 4351 (F—199489, N, N, W—655349); Nash & Taylor 935 (F—185303, F—185960, N); P. Wilson 7517 (F—221633, K, N), 7730 (F—221849, K, N). CUBA: Camagüey: León 16463 (Ha); Shafer 955 (B, F—285980, G, N, W—697230, W—659422), 2471 (Bm, D—537579, F—251005, G, N, P, W—848711), 2693 (Bm, F—251182, N, W—848866). Havana: Britton, Earle & Gager 6301 (N, W—697004); Ekman 13473 (S); Fortún 549 (Es), s.n. [Herb. Roig 549] (Rg); León 4226 (N), 7156 (N); Moldenke & Moldenke 19864 (N), 19865 (Es, Lg, Mg, Mr, N, No, Ot, Sm); Sagra 306 (Dc); P. Wilson 1682 (B, Es, N, Po—63520). Las Villas: Jack 4538 (A, W—1430913), 4646 (A, K, K, Po—174968), 5079 (B, K, P), 5091 (A, B, K, P), 5514 (A, P, S, Us), 7359 (A, B, Cp, P, S), 8141 (A, N); Luna 643 (Ha, N); Salvoza 535 (A). Matanzas: Britton & Wilson 99 (N), 197 (N); Rugel 334 (M). Oriente: G. C. Bucher 1a (F—598809), 11473 (Es); Clement 3124 (Ha, N); Ekman 6268 (N, S), 8638 (B, N—photo, S, Z—photo), 14722 (S), 14727 (B, Ha, N); Pollard, Palmer, & Palmer 28, in part (A, D—507923, F—125561, G, It, N, W—403119); Roig 6595 (Es); Shafer 1824 (N), 3934 (F—286310, N, W—697590), 7767 (B, N, W—696384); C. Wright 438 [1865; Herb. Sauvalle 1766, in part] (B, B, Hv). Pinar del Río: Britton & Earle 7568 (N); Britton, Earle, & Gager 6864 (N, W—697070); Britton & Gager 7637 (N, W—658726); O'Donovan 5204, in part (Es); Roig 1045 (Es), 6280 (Es), 6336 (Es); Shafer 11139 (E—119080, F—325381, G, N, Ut, W—699295), 13449 (B, N, W—757328); P. Wilson 11402 (N, W—698760). Province undetermined: Bonpland s.n. (P); Poeppig s.n. (E—216458). JAMAICA: R. C. Alexander s.n. [24 Ap. '50] (K); N. L. Britton 1070 (N), 3257 (N), 3774 (N); Britton & Hollick 1885 (N), 2363 (N); Dancer s.n. (Cb); Distin s.n. (K); Fredholm 3169 (N, W—316015); W. Harris 8608 (B, D—571260, N), 8840 (B, Bm, F—174411, F—185313, F—242739, N, W—656447), 10169 (B, Bm, Cp, F—243175, K, N, P, W—656947); A. S. Hitchcock s.n. [Lucea] (E—119095, F—228165); Marble 848 (N); March 954 (B, K); McCatty s.n. (K); Swartz s.n. (Dc, S); N. Wilson 176 (Le), 381 (B), s.n. (K);

Wolle s.n. (G). HISPANIOLA: Dominican Republic: Abbott 301 (W—1078682), 304 (B, N, W—1078681), 453 (B, W—1078680), 2559 (B, W—1145722), 2893 (E—920667, G, W—1147335); H. A. Allard 13896 (S); Chardon 744 [host] (It), 877 [host] (It); Desfontaines 1019 (Bm); Faris 348 (W—1145908), 451 (W—1145980); Fuertes 88, in part (B, Bm, Cb, Cb, Cb, E—706524, Ed, G, K, L, Le, Lu, N, P, Ut, V—6289, W—658180, W—658181); Herb. Persoon s.n. (Le); Howard & Howard 8730 (N), 9469 (N), 9757 (N); Mertens s.n. (B); Prenleloup 431a (B), 431b (B); L. C. Richard s.n. [S. Dom.] (Cb, P, P); Scarff 24a (F—924740, Y—35325); N. Taylor 261 (B, F—250846, N), 334 (B, F—250888, N); Türckheim 2513 (B, B, Bm, Br, Cb, Cb, Cb, E—119081, Ed, F—298533, G, Io—70576, K, Le, Le, Mu—4112, N, P, S, Ut, V—1349, W—656061); Wright, Parry, & Brummel 307 (F—575083, W—57321), 308 (It, W—57322, W—209865). Haiti: W. Buch 479 (B), 591 (B); Ekman H.8340 (B, N, S, W—1413025); Herb. Harvey s.n. [Haiti, 1842] (Du—166404, in part); Leonard & Leonard 7047 (N, W—1149030), 7705 (G, W—1149518), 11081 (Ba, Mi, W—1450078), 11218 (A, N, W—1450207), 11308 (Ca—439942, E—993073, J, K, W—1450285), 13549 (W—1452191), 14125 (W—1452688); Nash 30 (Es, F—158646, G, K, N), 290 (F—158751, N), 430 (F—158796, N), 914 (N), 959 (F—185301, N); Poiteau s.n. [Saint-Dominigue, 1802] (Cb, Cb, Cb, Cb), s.n. [Sto. Dom.] (B, B), s.n. [1 Nov. 1816] (L); Ritter s.n. (V, V, V). BEATA: R. A. Howard 12377 (N). PUERTO RICO: Britton, Britton, & Brown 6937 (N); Britton, Britton, & Hess 2749 (N, W—758949); Britton & Cowell 1968 (N); Britton & Shafer 1587 (N, W—758338); Cowles 186 (W—697740); Finch 70 (N, W—1556725); Gerhart & Holdridge 538 (N); Goll 827 (W—409370); Gregory 196 (N); Gundlach 1435 (B), 1471 (B); A. A. Heller 4421 (A, B, Cb, D, E—119085, Es, F—80566, G, It, Le, Mi, N, Po—64358, W—362647); Heller & Heller 213 (B, Bz—18719, F—119565, It, K, N, W—425743), 1166 (N), s.n. [east of Ponce, Dec. 3, 1902] (N, W—426623); Herb. Ventenat s.n. (Cb, Cb); Hess 1690 (N), 4737 (J); Hioram s.n. [Sept. 28, 1912] (N); Johnston & Stevenson s.n. [Herb. Exp. Sta. Río Piedras 1858] (N); Plée 587 (P, P), s.n. (P, P); Schwanecke s.n. (B); Sessé, Mociño, Castillo, & Maldonado 2370 (F—849482, It—photo, N—photo, Q, Z—photo); Sintenis 720 (B, F—79405, G, Io—75747, K, L, Lu, Mu—1179, S, W—1323191, X, X), 720b [Hort. Thenensis I.2920] (B, Bm, Br, C, Cb, Cb, Cm, Cp, E—119087, Ed, Es, Lu, Mu—3762, N, Ol, Ol, P, Po—63506, R, S, Us, Vu, Vu, X), 1386a (L), 1915 (B, S, Vu), 2085 (Ed), 2321 (B, E—119086, G, G, K, K, L, Le, Lu, N, V—146, W—403459), 3418 (Lu), 3723 (B, Bm, G, K, V—145, W—403460), 4969 (B, B, Cb, F—80003, Mu—3761, Mu—3763, P, X), 5088 (B, Es, S), 6787 (B, N), 7206 (Lu),

s.n. [X.86] (G), s.n. [12.4.85] (G); Stahl 802 (B, S), s.n. [XI. 1887] (Le); F. L. Stevens 7722 [535] (Ur); J. A. Stevenson 2185 (W—1475281); Underwood & Griggs 470 (N, W—405414), 770 (N, W-405707). CRAB ISLAND: Eggers s.n. [Oct. 1876] (G); Shafer 2370 (Gg—31073, N, W—759951). VIRGIN ISLANDS: Anegada: Britton & Fishlock 1043 (N, W—756783). Jost Van Dyke: J. S. Beard 315 (N). St. Croix: Benzon 5 (S), s.n. (Cp); A. E. Ricksecker 182 (B, Ca—473015, E—119075, F—70513, G, N, Ob—14854, Ob—14855, W—278073); L. A. Ricksecker 168 (B, E—119076, Ed, F—87813, P, W—425310); Rose, Fitch, & Russell 3622 (B, F—599447, F—689832, G, W—639759); West s.n. (S). St. Thomas: Eggers s.n. [Canaan, Sept. 1880] (B, Cb, F—241761, F—241762); Krebs s.n. (S); Kuntze 85 (N); Paulsen 124b (N); Read s.n. (D); L. C. Richard ? s.n. (P); Riédlé 80 (P), s.n. (P, P). LEEWARD ISLANDS: Barbuda: Fairchild 3849 (W—1556621). Dominica: West s.n. (Cp). Guadeloupe: Parker s.n. [1824] (K); Read 14 (D), s.n. [Herb. Philad. 479] (B). Montserrat: Ryan s.n. (Cp, Cp). St. Bartholomew: Forsström s.n. (S, S, S, S); Herb. Mus. Bot. Lund s.n. [Bartelemi] (Lu). WINDWARD ISLANDS: Grenada: W. E. Broadway s. n. [Nov. 11, 1904] (E—119090, G, N, W—429561); Masson s.n. (Bm). Martinique: Denisse s.n. [1844] (Du—166404, in part). St. Lucia: R. A. Howard 11389 (N), 11433 (N). St. Vincent: Collector undesignated s.n. [1824] (G); Guilding s.n. (K); Smith & Smith 664 (K). TRINIDAD: Bailey & Bailey s.n. [Feb. 5, 1921] (Ba); W. E. Broadway 6374 (A, Bm, Bm, E—932250, F—689809, K, K, S, W—1284694), s.n. [Nov. 1904] (F—175777), s.n. [Aug. 29, 1932] (A, Bm, I, K), s.n. [Sept. 16, 1932] (A, Bm, E—1031050, I, K); Dannouse s.n. [Maracas Bay] (N, R). WEST INDIES: Island undesignated: Forster s.n. (K); Herb. Le Monnier s.n. (Cb, Cb, Cb); Herb. Liebmann s.n. (Cp); Herb. Mohr s.n. (W—771907); Herb. Rottböll. s.n. (Cp, Cp, Cp); Herb. Schumacher s.n. (Cp); Herb. Torrey s.n. (T); Herb. Vahl s.n. (Cp, Cp); Mus. Bot. Berol. s.n. (B); Nuttall s.n. (D); L. C. Richard s.n. [ex India occidentali] (Cb); Ryan s.n. (Bm). VENEZUELA: Sucre: W. E. Broadway 118 (G, N, W—1187841). SURINAM: Poiteau s.n. (F—686693, F—686696); Samuels 280, in part (N, P), 308 (G, K, N). "GUIANA", exact locality undesignated: Herb. Ledebour s.n. (L). CULTIVATED: Austria: Herb. Portenschlag s.n. (V). Belgium: Nyst s.n. (Br, Br). Cuba: Jack 7359 (F—719529); Singleton 877 (Oa). Florida: Chapman s.n. (E—119116, E—119117, W—1323192); Walsingham s.n. [Chapman Field, Nov. 17, 1930] (Ar—19771, Ba). France: Herb. Le Monnier s.n. (Cb); Hort. Paris s.n. [1821] (Cb). New York: H. N. Moldenke 8383 (N); N. Taylor s.n. [N. Y. Bot. Gard. Cult. Plants 13449] (N). Pennsylvania: Herb. Bartram's Garden, Philadelphia, s.n. (D). Switzerland: Hort. Genev.

s.n. [Sept. 1857] (Cb). LOCALITY OF COLLECTION UNDESIGNATED: Collector undesignated 48 (Dc), 58 (Q); Herb. A. L. Jussieu 5088 (P, P). MOUNTED ILLUSTRATIONS: Addisonia 15: pl. 496 (S); Krug, Icon. Pl. Portoric. pl. 91 (B).

CITHAREXYLUM FRUTICOSUM var. BRITTONII Moldenke, Alph. List Common Names 5, 9, 10, 12, 14, & 33, hyponym (Aug. 31, 1939), Lilloa 4: 311. Oct. 11, 1939.

Synonymy: Citharexylum broadwayi O. E. Schulz in Urb., Symb. Ant. 7: 354--355. 1912. Citharexylum brittonii Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Citharexylum fruticosum var. brittonnii Moldenke ex H. N. & A. L. Moldenke, Pl. Life 2: 51, sphalm. 1948.

Literature: O. E. Schulz in Urb., Symb. Ant. 7: 354--355. 1912; Freeman & Williams, Useful Pl. Trin. 39. 1928; Marshall, Trees Trin. & Tob. 76. 1934; Moldenke, Alph. List Common Names 5, 9, 10, 12, 14, & 33. 1939; Moldenke, Geogr. Distrib. Avicenn. 12 & 36. 1939; Moldenke, Lilloa 4: 311. 1939; Moldenke, Prelim. Alph. List Invalid Names 16. 1940; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 30, 71, & 88. 1942; Moldenke, Phytologia 2: 96. 1944; Moldenke, Alph. List Cit. 1: 61, 67, 68, 98, & 131 (1946) and 2: 612. 1948; H. N. & A. L. Moldenke, Pl. Life 2: 51. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 57, 157, & 179. 1949; Moldenke, Alph. List Cit. 3: 870 & 885 (1949) and 4: 1007-1009, 1050, 1057, & 1133. 1949; Moldenke in Cheesman, Fl. Trin. & Tob. 2 (6): 21. 1955.

This variety differs from the typical form of the species in having its leaf-blades densely velutinous villous-pubescent beneath. It differs from var. villosum (Jacq.) O. E. Schulz in having the leaf-blades at time of anthesis very thin-membranous and the young leaves even at other times being also very thin. Even the fully matured leaf-blades are much thinner in texture and with less prominent venation than in the typical form of the species or in var. villosum.

It is a small tree, to 6 m. tall; branches medium, white or very light-gray, obtusely tetragonal, glabrous; branchlets slender, brown, acutely tetragonal, minutely puberulent or strigillose, becoming glabrate in age; nodes inconspicuously annulate; principal internodes 2--4.6 cm. long; leaf-scars large, with prominent margins, on older branches borne on large corky sterigmata 4--5 mm. long and about 4 mm. wide; leaves decussate-opposite (or approximate on young shoots); petioles slender, 5--9 mm. long, sparsely strigillose or subglabrate; leaf-blades membranous when young, thin-chartaceous when mature, darker above and nigrescent in drying when immature, lighter beneath, dull or subnitid in age, lanceolate or elliptic, 8.5--9 cm. long, 2.2--3.2 cm. wide, acute or acuminate at the apex, entire, short-cuneate at the base, bearing a pair of medium-sized black glands at the very base, very sparsely and minutely strigillose or puberulent on both surfaces, especially along the midrib and larger veins, becoming subglabrate, punctate beneath; midrib

slender, plane above, prominulous only at the base beneath; secondaries very slender, 5—7 pairs, ascending, often hardly arcuate, rather obscurely anastomosing; veinlet reticulation conspicuous beneath, but not at all prominulous; racemes terminal and terminating axillary branchlets, 7—8.7 cm. long, about 1 cm. wide, many-flowered, erect; peduncles slender, 1—1.5 cm. long or less, puberulent; rachis slender, densely puberulent or shortly canescent-pubescent; pedicels very slender, to 1 mm. long or obsolete; prophylla setaceous, 0.5—1 mm. long, pubescent; flowers erect-patent; calyx oblong-cyathiform, about 4 mm. long, short-pilose, the rim truncate, lightly 5-repand-dentate and ciliate; fruit reddish-brown.

The type of this variety was collected by Walter Elias Broadway (no. 3198) on the seashore, Cedros island, on January 15, 1908, and is deposited in the herbarium of the Botanisches Museum at Berlin. The type of C. brittonii was collected by Nathaniel Lord Britton (no. 2921) — in whose honor it and the variety are named — on a wooded hillside near the mouth of the Godineau River, Trinidad, on April 12, 1921, and is deposited in the Britton Herbarium at the New York Botanical Garden. It was at first assumed by me that Schulz's C. broadwayi and my C. brittonii were separate taxa, but their conspecificity was determined before the taxon was given varietal status by me. The variety was based on Schulz's type, but the epithet used for my proposed species was adopted as the varietal epithet.

The variety is remarkable because of its white branches, brown twigs, and membranous immature leaf-blades. Immature leaf-blades of C. caudatum L. and of the other varieties of C. fruticosum L., as well as of the typical form, are not so plainly thinner than the mature ones. Schulz says "Citharexylo fruticoso var. villoso certe affine, sed nervis lateralibus foliorum supra non prominentibus et pedunculo brevissimo differt." It has been collected in anthesis from April to June and in August and November, and in fruit from August to October and in June. It is said to inhabit seashores and the banks of streams, and has been confused with C. quadrangulare Jacq. [=C. spinosum L.]. The following vernacular names have been recorded: "bois cotelette", "bois cutlet", "cotelette", "cutlet", "fiddlewood", "hairy cutlet", and "white fiddlewood". Of these, however, "bois cotelette" is also applied to var. villosum, "cutlet" to C. fruticosum, C. fruticosum var. villosum, and C. spinosum, "fiddlewood" to var. villosum, C. spinosum, Cornutia pyramidata L., Petitia domingensis Jacq., Vitex gaumeri Greenm., and V. umbrosa Sw., and "white fiddlewood" to C. caudatum, C. fruticosum, C. fruticosum var. villosum, Vitex capitata Vahl, and V. compressa Turcz.

Trin. Bot. Gard. Herb. 7203 shows a binary leaf! In all, 37 herbarium specimens, including the types of all the names involved, and 12 mounted photographs have been examined.

Citations: TRINIDAD: N. L. Britton 2921 [Trin. Bot. Gard.

Herb. 10031] (E—photo, G. N. N—photo, N—photo, R, S—photo, W—1194559, W—photo, Z—photo, Z—photo); W. E. Broadway 3861 (B, Bm, F—388029, Le, Mu—4307, N, R, R), 6371 (A, Bm, E—932290, F—689806, K, S, W—1284693), s.n. [Trin. Bot. Gard. Herb. 7344] (R), s.n. [Trin. Bot. Gard. Herb. 12238] (K); Chancellor s.n. [Trin. Bot. Gard. Herb. 8363] (R); Crüger s.n. [Trin. Bot. Gard. Herb. 2397] (B, N, R, W—1323221); C. King s.n. [Trin. Bot. Gard. Herb. 7203] (R); F. R. Russell s.n. [Trin. Bot. Gard. Herb. 12238] (R), s.n. [Trin. Bot. Gard. Herb. 12239] (R); R. O. Williams s.n. [Trin. Bot. Gard. Herb. 12035] (K, N, R), s.n. [Trin. Bot. Gard. Herb. 12192] (R). CEDROS: W. E. Broadway 3198 (B—type, E—photo of type, N—photo of type, S—photo of type, W—photo of type, Z—photo of type); Rorer s.n. [Cedros, June 6, 1911] (R, R). CULTIVATED: Trinidad: Trin. Bot. Gard. Herb. 2398 (R).

CITHAREXYLUM FRUTICOSUM var. SMALLII Moldenke in Fedde, Repert. 37: 223. 1934.

Synonymy: Citarexylum fruticosum var. smallii Moldenke apud Alain in León & Alain, Fl. Cuba 4: 300, sphalm. 1957.

Literature: Greenm. in Millsp., Field Columb. Mus. Publ. Bot. 2: 179. 1907; Moldenke in Fedde, Repert. 37: 223. 1934; Moldenke, Geogr. Distrib. Avicenn. 4. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 24 & 88. 1942; Moldenke, Alph. List Cit. 1: 55, 56, 60, 65, 112, 272, 302, 307, 308, & 312 (1946) and 2: 543. 1948; H. N. & A. L. Moldenke, Pl. Life 2: 84. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 42, 43, & 179. 1949; Moldenke, Alph. List Cit. 3: 739, 765, 773, & 943 (1949) and 4: 1037. 1949; Alain in León & Alain, Fl. Cuba 4: 300. 1957.

This variety differs from the typical form of the species in its very narrow and linear, lanceolate, linear-lanceolate, or oblanceolate leaf-blades, which are 1.5—12 cm. long and 6—24 mm. wide and are often more or less falcate. The petioles are 5—15 mm. long. The leaf-blades occasionally bear 1 or 2 pairs of small teeth near the apex, or very rarely on the most oblanceolate type of blades these teeth are large and lobe-like. The plant is a shrub with spreading branches, very glabrous and shiny throughout, or occasionally the lower leaf-surfaces are only subglabrate and punctate.

The type of the variety was collected by John Kunkel Small and Joel Jackson Carter (no. 8583) in a coppice near Deep Creek, Long Bay Cays section, Andros Island, Bahamas, between January 20 and 22, 1910, and is deposited in the Britton Herbarium at the New York Botanical Garden.

This is the form reported in Field Columb. Mus. Publ. Bot. 2: 179 (1907) as C. berterii Spreng. and identified by B. L. Robinson as C. bahamense Millsp. The Northrop & Northrop 608 collection bears more or less abnormal flowers, perhaps due to gall insect infestation.